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SHARP 21V-J100M SERVICE MANUAL

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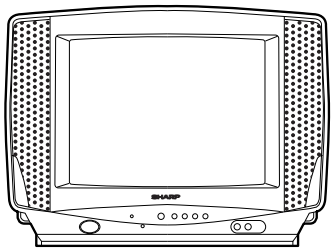
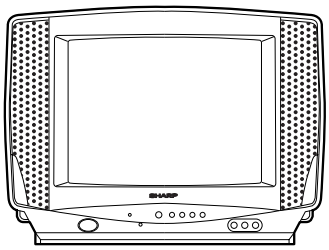
SHARP SERVICE MANUAL

SY8B320VJ100M



20/21V-J100M



20/21V-J200S

COLOR TELEVISION

Chassis No. SN-70B

MODELS 20/21V-J100M 20/21V-J200S

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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ELECTRICAL SPECIFICATIONS

POWER INPUT ..... 110 - 220V AC 50/60 Hz
POWER RATING
  20/21V-J100M ..... 91/92 W
  20/21V-J200S 96/97W
PICTURE SIZE
  20V-J100M/200S ..... 1194cm^2 (185sq inch)
  21V-J100M/200S ..... 1240cm^2 (192sq inch)
CONVERGENCE ..... Magnetic
SWEEP DEFLECTION ..... Magnetic
FOCUS ..... Hi-Bi-Potential Electrostatic
INTERMEDIATE FREQUENCIES
  Picture IF Carrier Frequency ..... 45.75 MHz
  Sound IF Carrier Frequency ..... 41.25 MHz
  Color Sub-Carrier Frequency ..... 42.17 MHz (Nominal)

AUDIO POWER OUTPUT RATING
  20/21V-J100M ..... 1.3 W (at 10% distortion)
  20/21V-J200S ..... 2.5 W (at 10% distortion)
SPEAKER
  SIZE ..... 12cm x 6cm
  VOICE COIL IMPEDANCE
    20/21V-J100M ..... 8 ohm at 400 Hz
    20/21V-J200S ..... 16 ohm at 400 Hz
ANTENNA INPUT IMPEDANCE
  VHF/UHF ..... 75 ohm Unbalanced
TUNING RANGES
  VHF-Channels ..... 2 thru 13
  UHF-Channels ..... 14 thru 69
  CATV Channels ..... 1 thru 125

Specifications are subject to change without prior notice.

SHARP CORPORATION

IMPORTANT SERVICE SAFETY PRECAUTION

■ **Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and servicing guidelines which follow:**

WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.
3. Semiconductor heat sinks are potential shock hazards when the chassis is operating.
4. The chassis in this receiver has two ground systems which are separated by insulation material. The non-isolated (hot) ground system is for the B+ voltage regulator circuit and the horizontal output circuit. The isolated ground system is for the low B+ DC voltages and the secondary circuit of the high voltage transformer.
   To prevent electrical shock use an isolation transformer between the line cord and power receptacle, when servicing this chassis.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove the static charge by connecting a 10k ohm resistor in series with an insulated wire (such as a test probe) between the picture tube ground and the anode lead. (AC line cord should be disconnected from AC outlet.)

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage anode completely.

X-RADIATION AND HIGH VOLTAGE LIMITS

1. Be sure all service personnel are aware of the procedures and instructions covering X-radiation. The only potential source of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-Ray radiation if the high voltage is as specified in the "High Voltage Check" instructions.
   It is only when high voltage is excessive that X-radiation is capable of penetrating the shell of the picture tube including the lead in glass material. The important precaution is to keep the high voltage below the maximum level specified.
2. It is essential that service personal have available at all times an accurate high voltage meter.
   The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value -no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and; also under certain conditions, may produce radiation that exceeds specifications.
4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. Do not use a picture tube other than that specified or make unrecommended circuit modifications to the high voltage circuitry.
6. When troubleshooting and taking test measurements on a receiver with excessive high voltage, avoid being unnecessarily close to the receiver.
   Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

IMPORTANT SERVICE SAFETY PRECAUTION
(Continued)

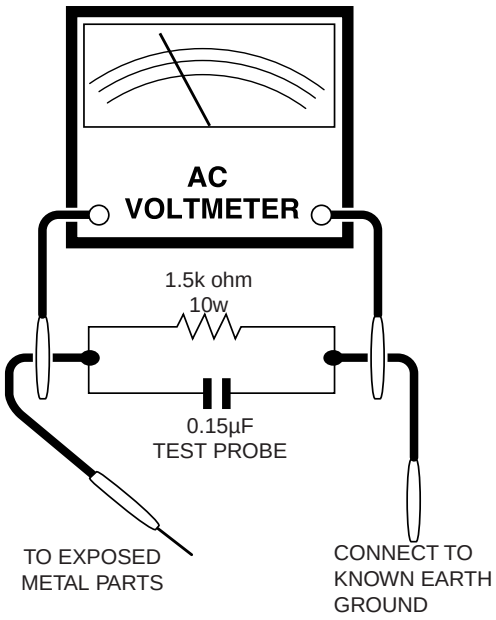
BEFORE RETURNING THE RECEIVER

(Fire & Shock Hazard)

Before returning the receiver to the user, perform the following safety checks.

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.

- Plug the AC cord directly into a 110 ~ 220 volt AC outlet, (Do not use an isolation transformer for this test).
- Using to clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15µF capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to earth ground.
- Use an AC voltmeter having with 5000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor.
- Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon and etc.) and measure the AC voltage drop across the resistor.
  AII check must be repeated with the AC line cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these check.)
  Any current measured must not exceed 0.5 milliamp.
  Any measurements not within the limits outlined above are indicative of a potential shock hazard and corrective action must be taken before returning the instrument to the customer.



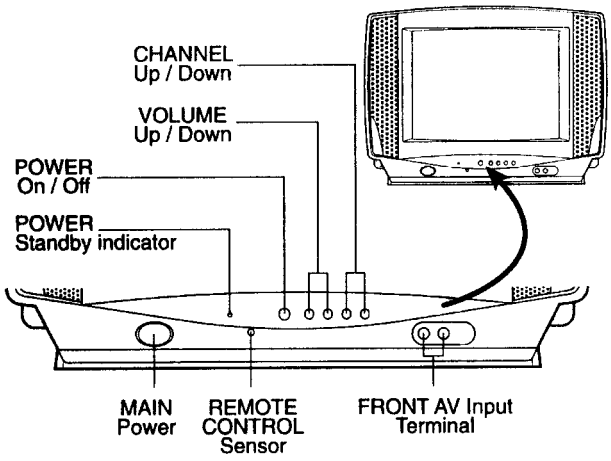
SAFETY NOTICE

Many electrical and mechanical parts in television receivers have special safety-related characteristics.
These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage and etc.
Replacement parts which have special safety characteristics are identified in this manual; electrical components having such features are identified by " ⚠ " and shaded areas in the ***Replacement Parts Lists*** *and* ***Schematic Diagrams****.*

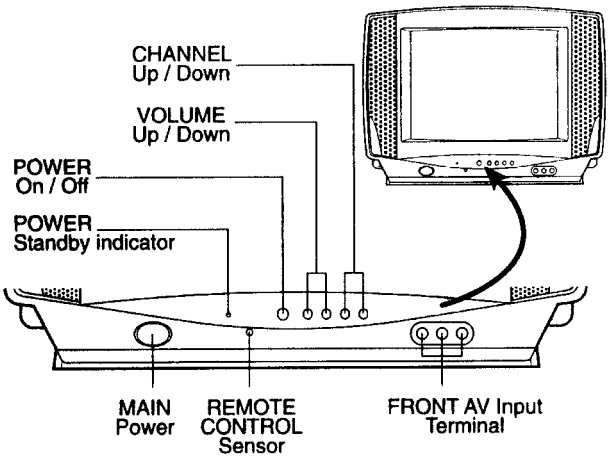
For continued protection, replacement parts must be identical to those used in the original circuit. The use of substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

LOCATION OF USER'S CONTROL

Front Panel

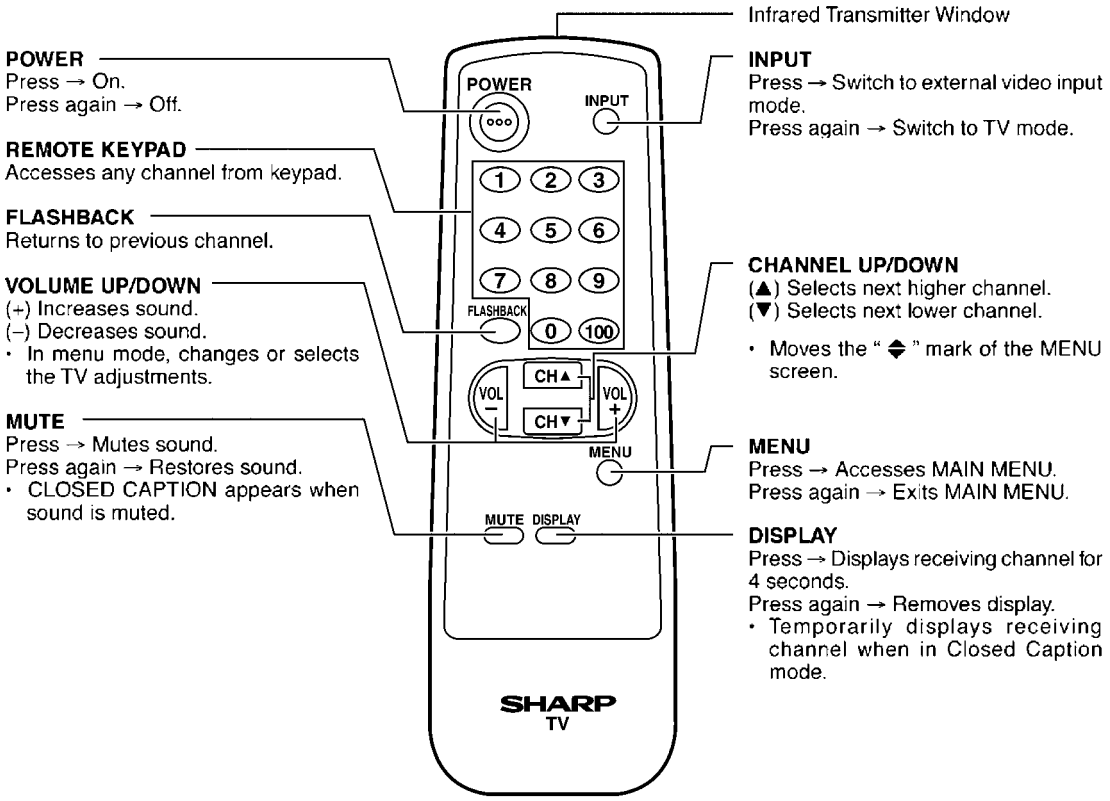


20/21V-J100M



20/21V-J200S

Basic Remote Control Functions



INSTALLATION AND SERVICE INSTRUCTIONS

Note: (1) When performing any adjustments to resistor controls and transformers use non-metallic screwdriver or TV alignment tools.
(2) Before performing adjustment, the TV set must be on at least 15 minutes.

CIRCUIT PROTECTION

The receiver is protected by a 3.15A fuse (F701), mounted on PWB-A, wired into one side of the AC line input.

X-RADIATION PROTECTOR CIRCUIT TEST

After service has been performed on the horizontal deflection system, high voltage system, B + system, test the X-Radiation protection circuit to ascertain proper operation as follows:

1. Apply 220V AC using a variac transformer for accurate input voltage.
2. Allow for warm up and adjust all customer controls for normal picture and sound.
3. Select a local channel.
4. Connect a digital voltmeter to TP653 and make sure that the voltmeter reads 20.6 ±1.5V.
5. Apply external 26.8V DC at TP653 by using an external DC supply, TV must be shut off.
6. To reset the protector, unplug the AC cord and make a short circuit between TP651 and TP652. Now make sure that normal picture appears on the screen.
7. If the operation of the horizontal oscillator does not stop in step 5, the circuit must be repaired before the set is returned to the customer.

+115V DC Regulator Adjustment

The +115V DC Adj. control (R721) is adjusted at the factory. However, should readjustment be required, proceed as follows:

1. Actuate the receiver with 220V AC input voltage.
2. Select a good local channel.
3. Connect positive lead of digital voltmeter to R603 TP751 (positive side) on PWB-A; negative lead to chassis ground.
4. Adjust R721 to obtain a +115V DC reading.
   Caution : The reading should be within +115V ± 1 V DC to ensure normal function and circuitry reliability.

HIGH VOLTAGE CHECK

High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified checks should be as follows:

1. Connect an accurate high voltage meter between ground and anode of picture tube.
2. Operate receiver for at least 15 minutes at 110 ~ 220V AC line voltage, with strong air signal or properly tuned in test signal.
3. Set service mode on (See next page.), and select service adjustment "S19" and Bus data "01" (Y-mute on).
4. The voltage should be approximately 20V-J100M / J200S 26.5kV 21V-J100M/J200S 27kV (at zero beam)."
   If a correct reading cannot be obtained, check circuitry for malfunctioning components. After the voltage test, make Y-mute off to the normal mode.

For adjustments of this model, the bus data is converetd to various analog signals by the D/A converter circuit.

Note: There are still a few analog adjustments in this series such as focus and master screen voltage. Follow the steps below whenever service adjustment is required. See "Table-B" to determine, if service adjustments are required.

1. Service mode

Before putting unit into the service mode, check, that customer adjustments are in the normal mode. use the reset function in the video adjust menu to ensure customer controls are in their

2. Service number selection

Once in the service mode, press the channel up or channel down button on the remote transmitter or at the set. the service adjustment number will vary in increments of one, from "S01" to "M05".
Select the item you wish to adjust.

3. Data number selection

Press the volume up or down button to adjust the data number.

To enter the service mode and exit service mode.

While pressing the Vol-up and Ch-up buttons at the same time, plug the AC cord into a wall socket. Now the TV set is switched on and enters the service mode.
To exit the service mode, shut the television off by pressing the power button.

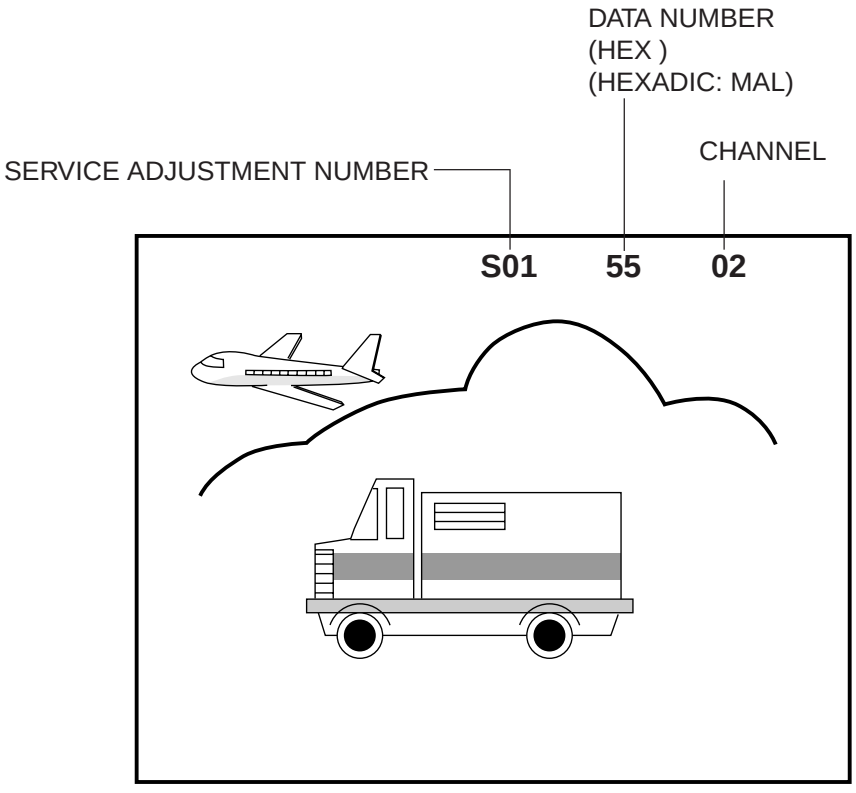


Figure A.

SERVICE NUMBER	ADJUSTMENT ITEM	DATA		ADJUSTMENT CONTENTS
		INITIAL VALUE	RANGE	
S01	PICTURE	55	00-7F	
S02	TINT	46	00-7F	
S03	COLOR	32	00-7F	
S04	BRIGHTNESS	40	00-7F	
S05	SHARPNESS	28	00-3F	Must be set to "24"
S06	VERTICAL PHASE	00	00-07	Must be set between "0" to "03"
S07	HORIZONTAL PHASE	12	00-1F	
S08	RF-AGC	2A	00-3F	
S09	VERTICAL AMP	20	00-3F	
S10	VCO	2C	00-7F	
S11	R CUT-OFF	00	00-FF	
S12	G CUT -OFF	00	00-FF	
S13	B CUT-OFF	00	00-FF	
S14	G GAIN	7F	00-FF	
S15	B GAIN	7F	00-FF	
S16	TRAP(3.58MHz)	00	00 or 01	Must be set to "00"
S17	BALANCE	20	00-3F	Must be set to "20"
S18	C.C.POSITION	18	00-7F	
S19	Y-MUTE	00	00,01,03	"00"=NORMAL, "01"=no Y, "03"=NO VERTICAL
OP	OPTION (Set to each model)	80	00-FF	Must be set to "08"(20/21V-J100M)
M01	MTS LEVEL	0A	00-0F	"0D"(20/21V-J200S)
M02	STEREO-VCO	20	00-3F	
M03	FILTER	1C	00-3F	
M04	LOW SEPARATION	20	00-3F	
M05	HIGH SEPARATION	1B	00-3F	

Table - A

Holding down both the CH UP/DOWN keys on the TV set at service mode for more then 2 seconds will automatically write the above initial values into IC2101.

PART REPLACED	ADJUSTMENT		NOTES
	NECESSARY	UNNECESSARY	
IC2001		X	Data is stored in IC2101.
IC201	X		The adjustment is needed to compensate for characteristics of parts including IC201.
IC2101	X		Holding down both the CH UP/DOWN keys on the TV set at service mode for more than 2 seconds will automatically write the above initial values into IC2101.
CRT	X		Adjust items related to picture tube only.
IC3001 (20/21V-J200S)	X		Adjust items related to MTS only (M01 - M05).

Table - B

■ SERVICE ADJUSTMENT

VCO Adjustment

1. Connect a digital voltmeter between pin (44) of IC201 and ground.
2. Select a good local channel.
3. Enter the service mode and select adjustment "S10".
4. Adjust the data so that digital voltmeter reads 2.2V.
5. Adjustment is complete, remove the voltmeter, return to "normal" mode.

RF AGC Adjustment

1. Have unit receive a good local channel.
2. Enter the service mode and select service adjustment "S08".
3. Set the data value to point where no noise or beat appears.
4. Select another channel to confirm that no noise or beat appears.
   Note1: You will have to come out of the service mode to select another channel.
   Note2: Setting the data to "00" will produce a black raster.

Screen Adjustment

1. Connect a digital voltmeter between TP852 and TP853 on the CRT socket PWB.
   Note : These test points may not be provided. Then connect the voltmeter to both ends of R852 located near Q852 on the foil side.
2. Select a good local channel.
3. Enter the service mode and select service adjustment "S03" and set the data value to "00" to set the color level to minimum. (Record original data code under adjustment "S03" before changing) You may skip this step, if you selected a B/W picture or monoscope pattern.
4. Select service adjustment "S19" and adjust the data value to "01" this turn off the luminance signal (Y-mute).
5. Select service adjustment "S04" and adjust data value to obtain 0.17 volts on the digital voltmeter.
6. Adjust the master screen control until the raster darkens to the point where raster is barely seen.
7. Adjust service adjustments "S11" red, "S12" green and "S13" blue to obtain a good grey scale with normal whites at low brightness level.
8. Select service adjustment "S19" and reset data to "00". Select service adjustment "S03" and reset data to obtain normal color level.
9. Remove digital voltmeter.
   Reset master screen control to obtain normal brightness range.

White Balance Adjustment

1. Have unit receive a good local channel.
2. Enter the service mode and select service adjustment "S03" and set to "00" (minimum color). "S03" does not have to be adjusted, if you selected a B/W picture or monoscope pattern.
3. Alternately adjust service adjustment data of "S14" and "S15" until a good grey scale with normal whites is obtained.
4. Select service adjustment "S03" and adjust data to obtain normal color level.

Sub-Picture Adjustment

1. Have unit receive a good local channel.
2. Make sure the customer picture control is set to maximum.
3. Enter the service mode and select service adjustment "S01".
4. Adjust the data value to achieve normal contrast range.

Sub-Tint Adjustment

1. Have unit receive a good local channel.
2. Set customer tint control to center of it's range.
3. Enter the service mode and select service adjustment "S02".
4. Adjust "S02" data value to obtain normal flesh tones.

Sub-Color Adjustment

1. Have unit receive a good local channel.
2. Make sure the customer color control is set to center position.
3. Enter the service mode and select service adjustment "S03".
4. Adjust "S03" data value to obtain normal color level.

Sub-Brightness Adjustment

1. Have unit receive a good local channel.
2. Make sure the customer brightness control is set to center position.
3. Enter the service mode and select service adjustment "S04".
4. Adjust "S04" data value to obtain normal brightness level.

Vertical-Size Adjustment

1. Have unit receive a good local channel.
2. Enter the service mode and select service adjustment "S09".
3. While observing the top and bottom of the screen, adjust "S09" data value to proper vertical size.

Vertical Phase Adjustment

1. Enter the service mode and select service adjustment "S06".
2. Adjust data value to "00"~"03" so that picture is approximate center.
   Note : This must be set "00"~"03" when adjust another data retrace line will be appear.

Horizontal Position Adjustment

1. Have unit receive a good local channel.
2. Enter the service mode and select service adjustment "S07".
3. Adjust "S07" data value so that picture is centered.

Caption Position Adjustment (Horizontal)

1. Have unit receive a good local channel.
2. Enter the service mode and select service adjustment "S18".
3. A black text box appears on the screen (see **Figure B.** below).
4. Adjust "S18" data value so that text box is positioned in the center of the screen.

3.58MHz Trap Adjustment

1. Have unit receive a good local channel.
2. Enter the service mode and select service adjustment "S16".
3. This is a two position adjustment, "00" is ON, "01" is OFF.
4. Adjust data value to "00" for normal viewing.

Sharpness and Audio Balance Adjustments

1. Have unit receive a good local channel.
2. Enter the service mode and select "S05" for sharpness and "S17" for balance.

• Sharpness Adjustment

3. Adjust data value to "24" (center of data range) for sharpness adjustment.

• Audio Balance Adjustment

4. Adjust data value to "20" (center of data range) for Audio balance adjustment.

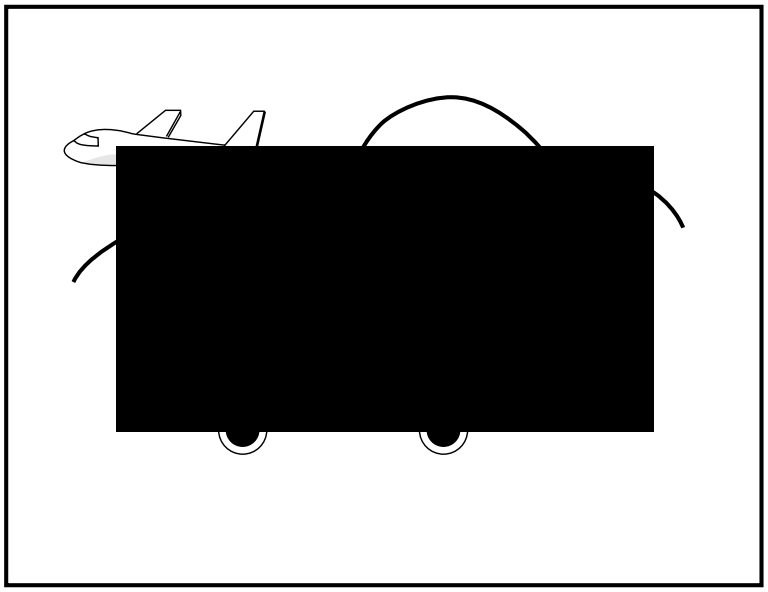


Figure B.

■ MTS ADJUSTMENT
(Only for 20/21V-J200S)

MTS Level Adjustment

1. Feed the following monaural signal to C3005 (–).
   Monaural signal : 300Hz, 245mVrms
2. Connect the rms voltmeter to pin (39) of IC3001.
3. Enter the service mode ant select the service adjustment "M01".
4. Adjust the data so that the rms voltmeter should take the reading 490 ± 10mVrms.

Stereo VCO Adjustment

1. Keep the unit in no-signal state.
2. Connect the frequency counter to pin (39) of IC3001.
3. Connect a capacitor (100µF, 50V) in between positive (+) side of C3005 and ground.
4. Enter the service mode and select the service adjustment "M02".
5. Adjust the data so that the frequency counter should take the reading 62.94 ± 0.75kHz.

Filter Adjustment

1. Feed the following stereo pilot signal to C3005 (–).
   Stereo pilot signal: 9.4kHz, 600mVrms.
2. Enter the service mode and select the service adjustment "M03".
3. Adjust the data at the point where "OK" appears on the screen. The "OK" represents the approximate center of the adjustable range of the data.

Separation Adjustment

1. Connect the rms voltmeter to pin (39) of IC3001.
2. Receive the following composite stereo signal 1.
   Composite stereo signal: 30% modulation, left channel only, noise reduction on, 300Hz
3. Enter the service mode and select the service adjustment "M04".
4. Adjust the data until the AC voltage reading of the rms voltmeter is minimum.
5. Receive the following composite stereo signal 2.
   Stereo signal: 30% modulation, left channel only, noise reduction on, 3kHz
6. Enter the service mode and select the service adjustment "M05".
7. Adjust the data until the AC voltage reading of the rms voltmeter is minimum.
8. Take the above steps 1. thru 7. again for fine adjustment.

DESCRIPTION OF SCHEMATIC DIAGRAM

NOTES:

1. *The unit of resistance "ohm" is omitted. (K=kΩ=1000Ω, M=MΩ)*
2. *All resistors are 1/8 watt, unless otherwise noted.*
3. *All capacitors are μ F, unless otherwise noted. (P=pF=μμF)*
4. *(G) indicates ±2% tolerance may be used.*
5. ⏚ *indicates line isolated ground.*
6. ⏚ *indicates hot ground.*

VOLTAGE MEASUREMENT CONDITIONS:

1. *All DC voltages are measured with DVM connected between points indicated and chassis ground, line voltage set at 110 ~ 220V AC and all controls set for normal picture unless otherwise indicated.*
2. *All voltages measured with 1000μ V B & W or Color signal.*

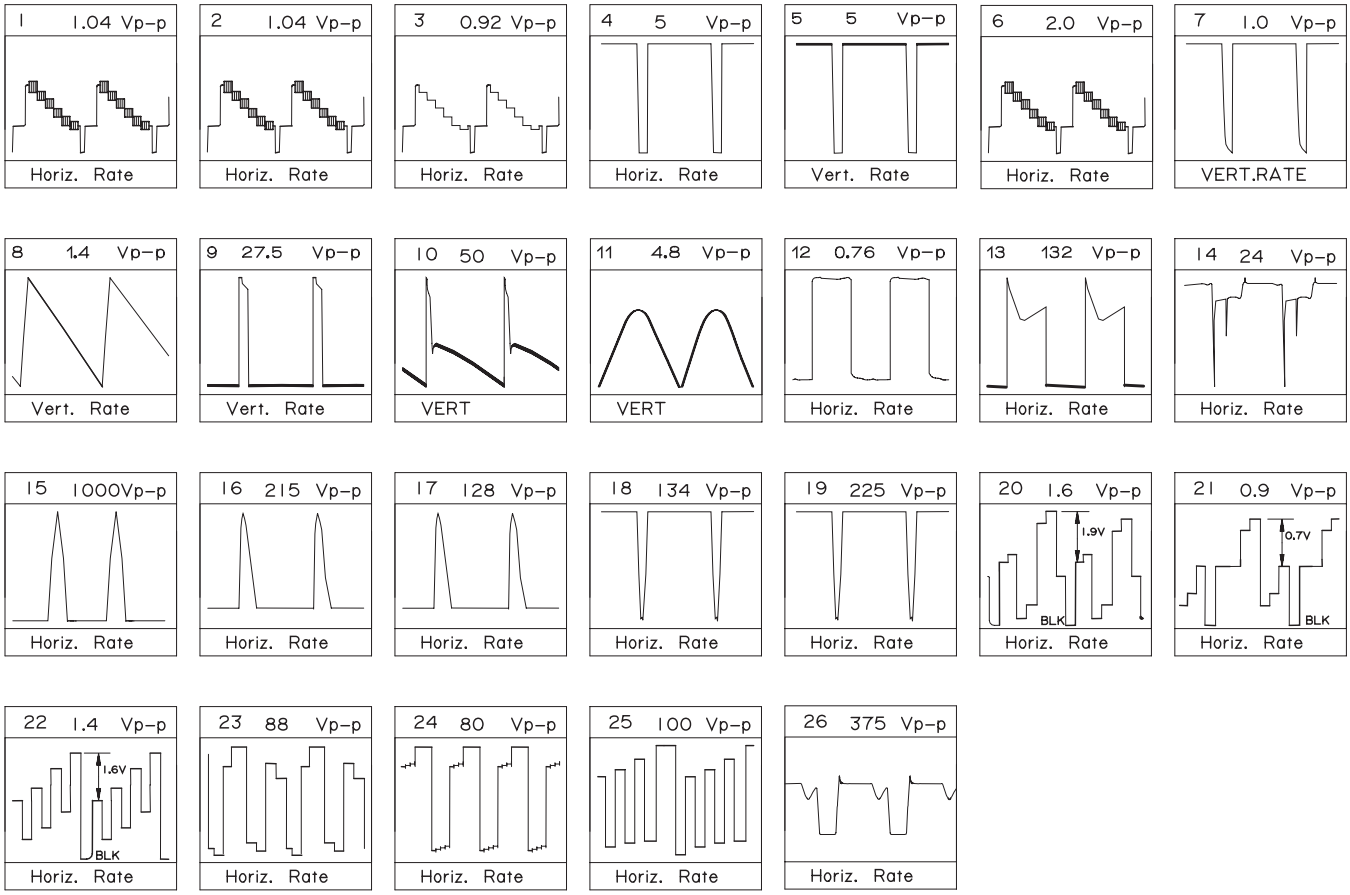
WAVEFORM MEASUREMENT CONDITIONS:

1. *Photographs taken on a standard gated color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.*
2. ◯▶ *indicates waveform check points (See chart, waveforms are measured from point indicated to chassis ground.)*

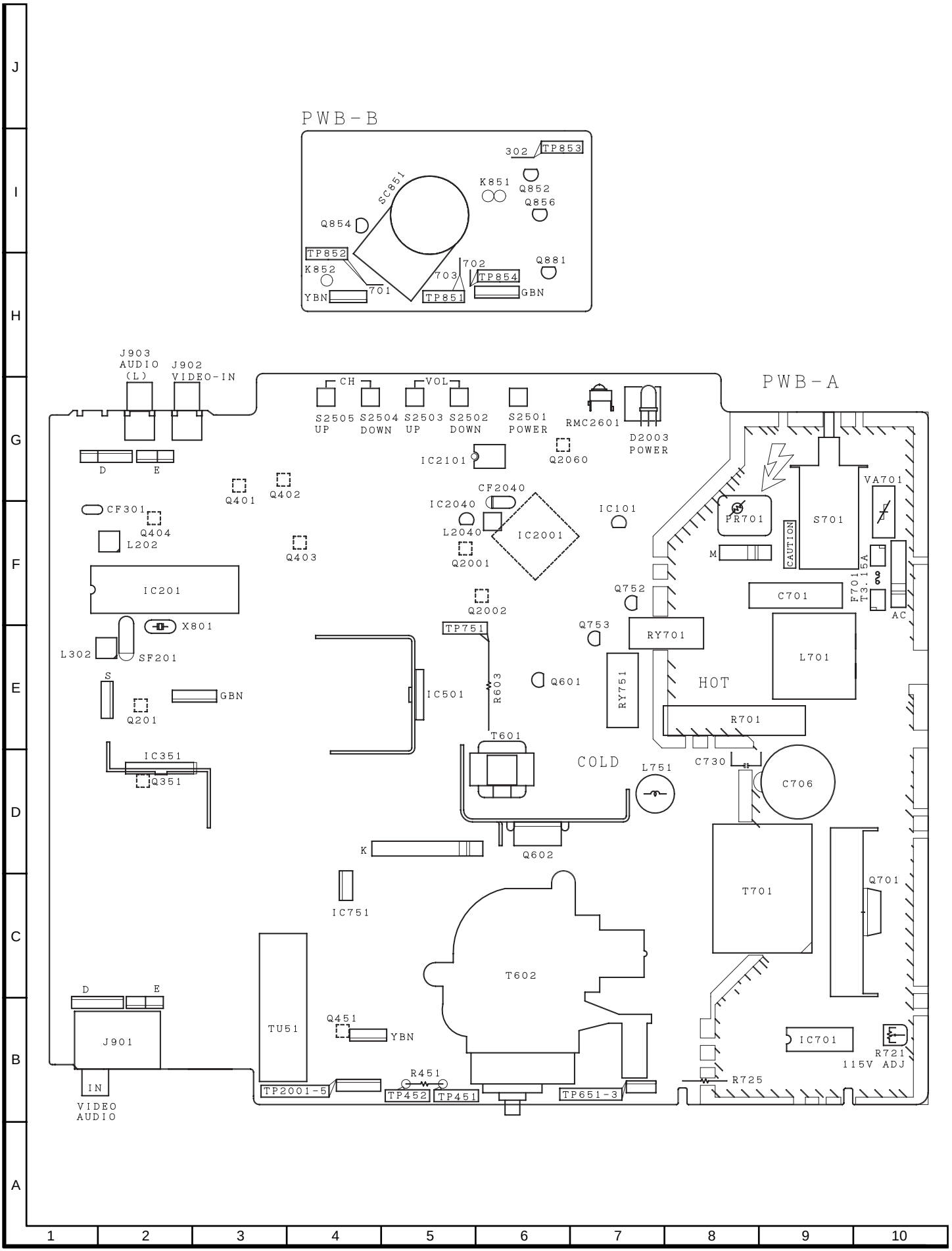
⚠ *AND SHADED ( ) COMPONENTS = SAFETY RELATED PARTS.*
▲ *MARK= X-RAY RELATED PARTS.*

This circuit diagram is a standard one, printed circuits may be subject to change for product improvement without prior notice.

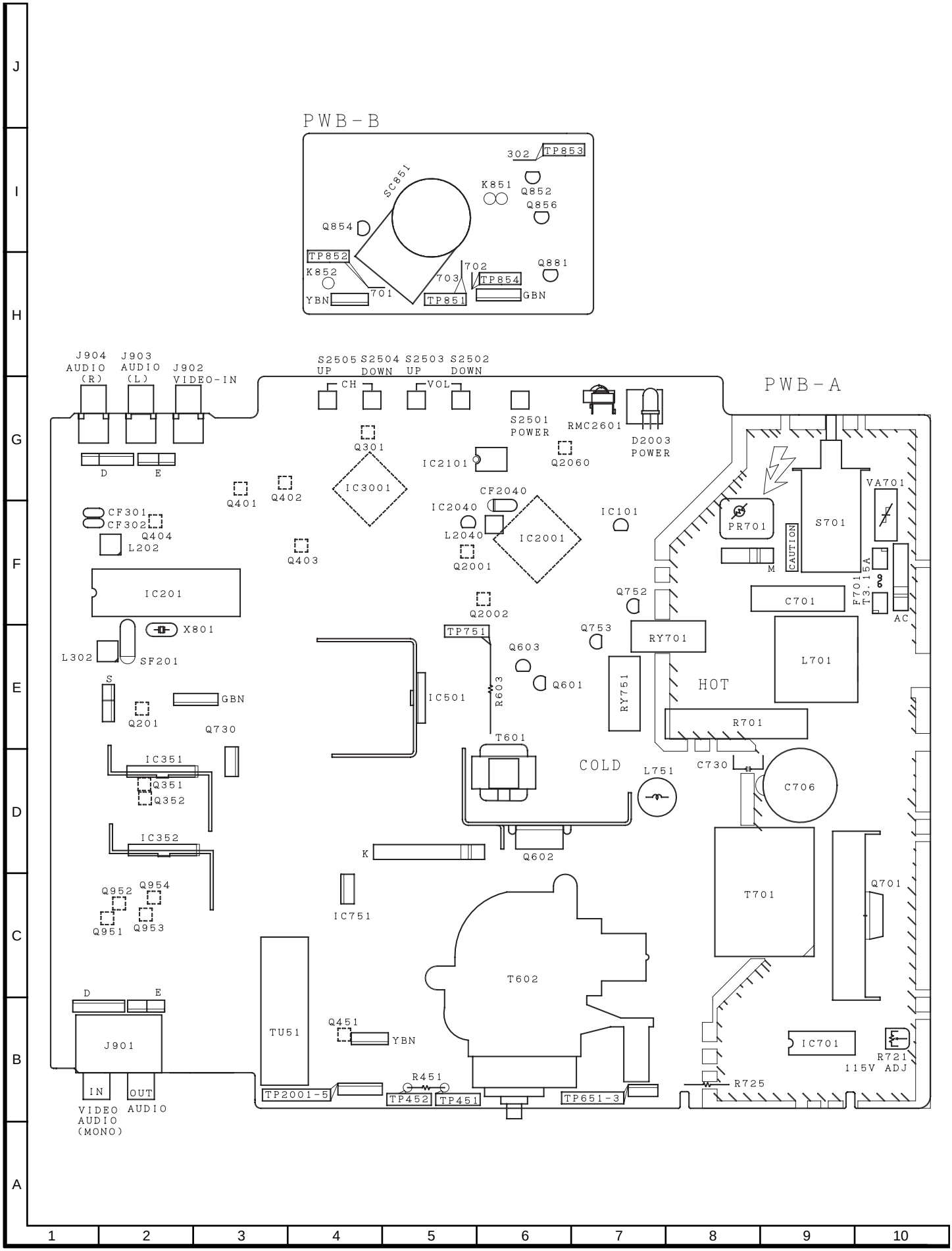
WAVE FORMS



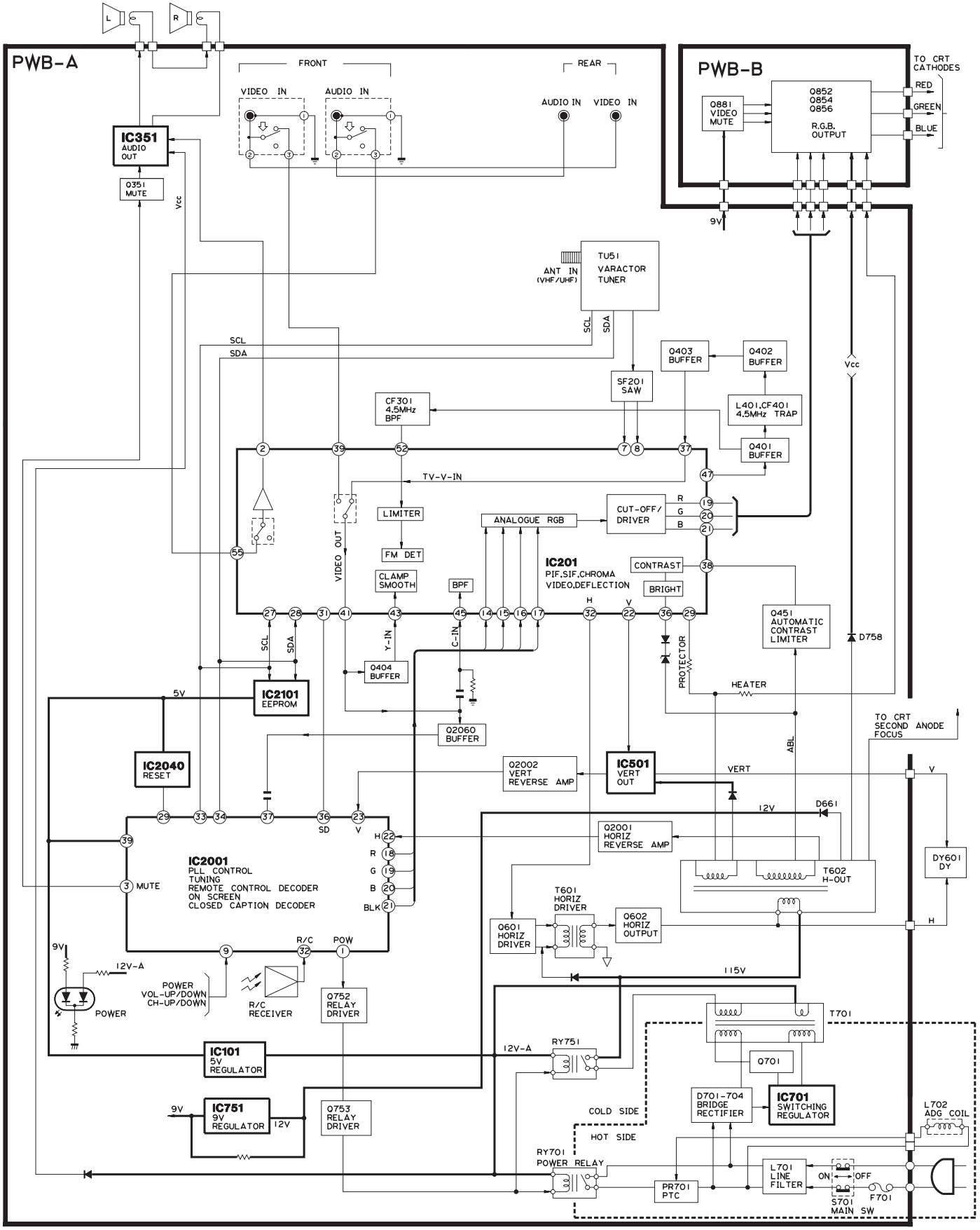
MODELS 20/21V-J100M CHASSIS LAYOUT



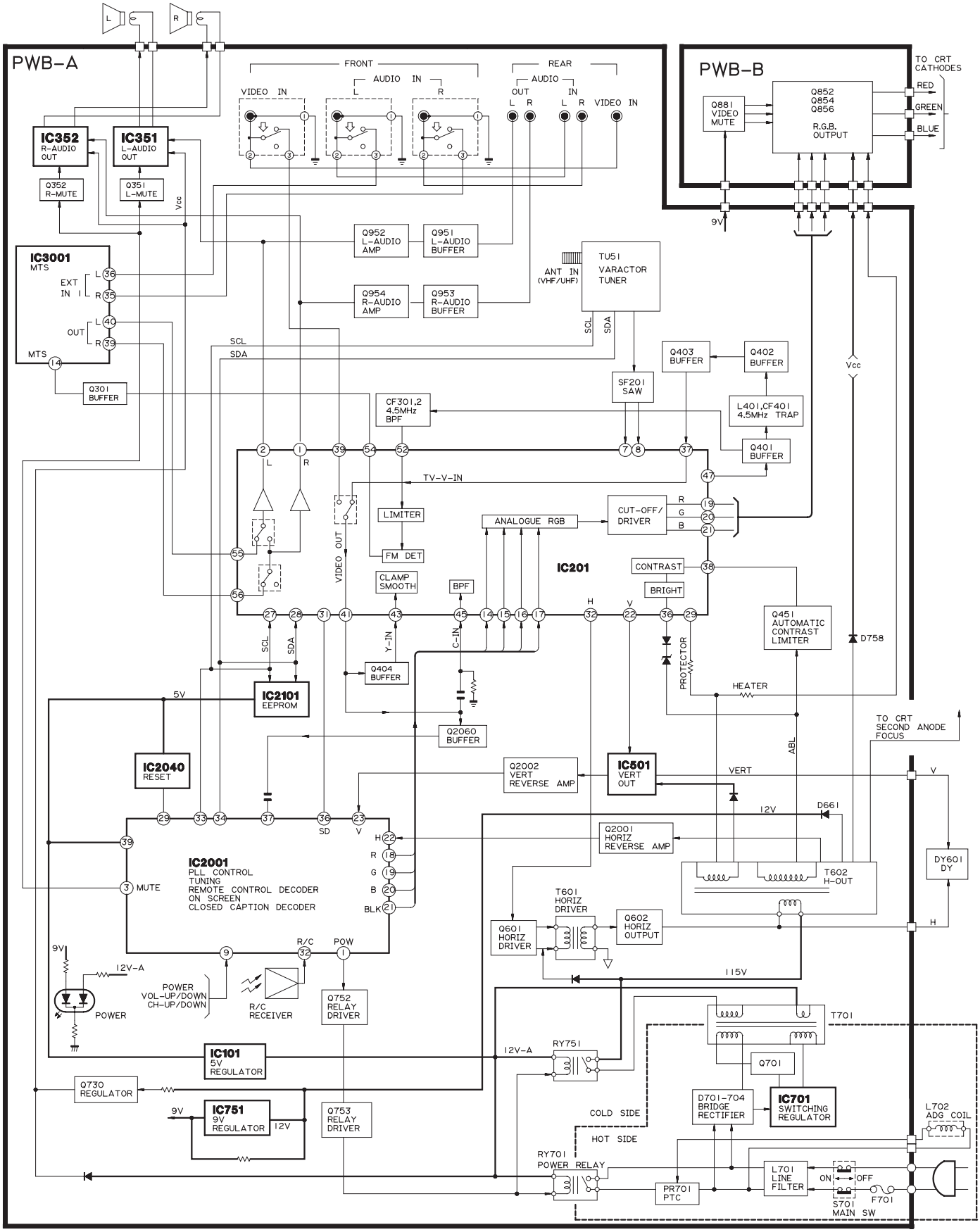
MODELS 20/21V-J200S CHASSIS LAYOUT



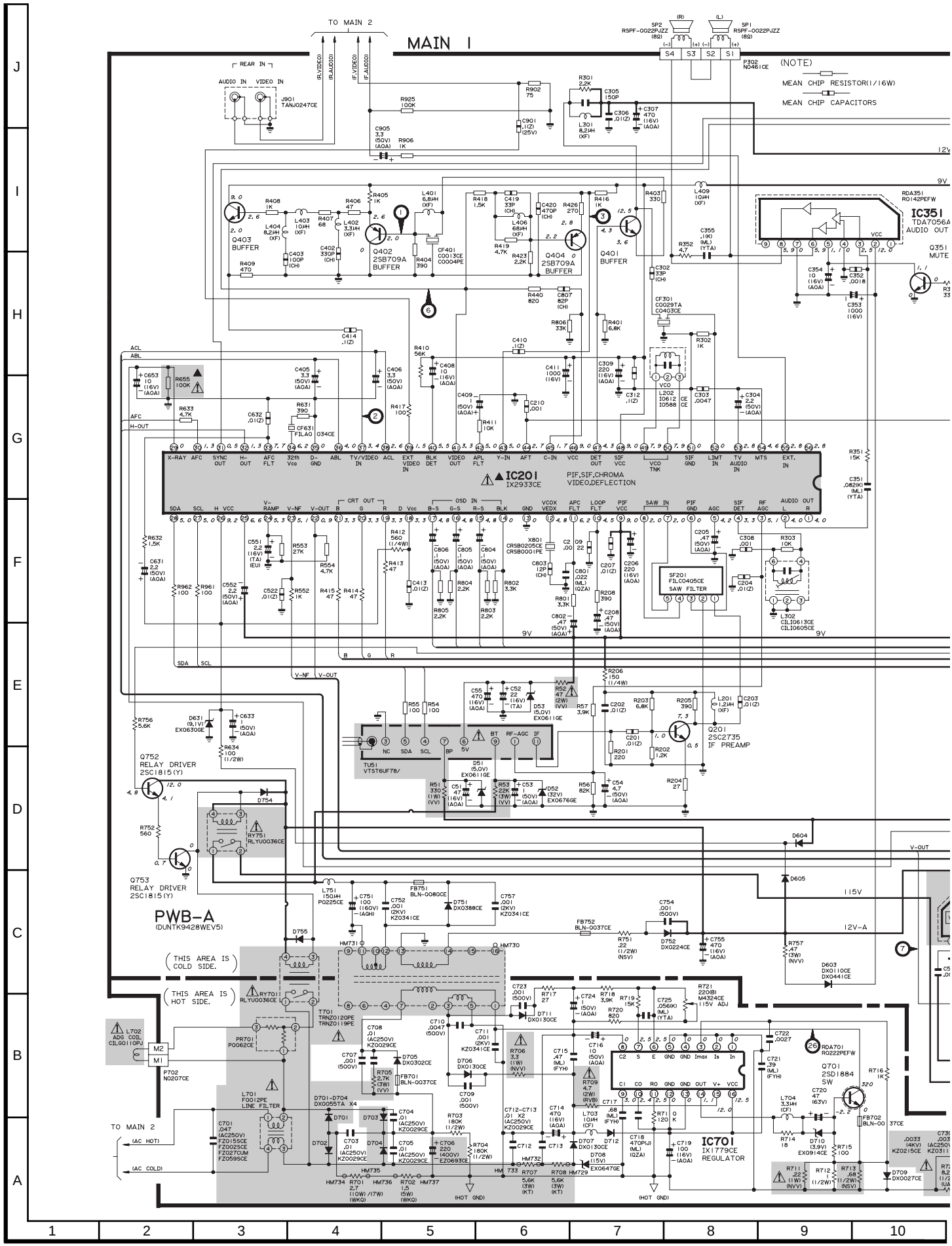
MODELS 20/21V-J100M BLOCK DIAGRAM

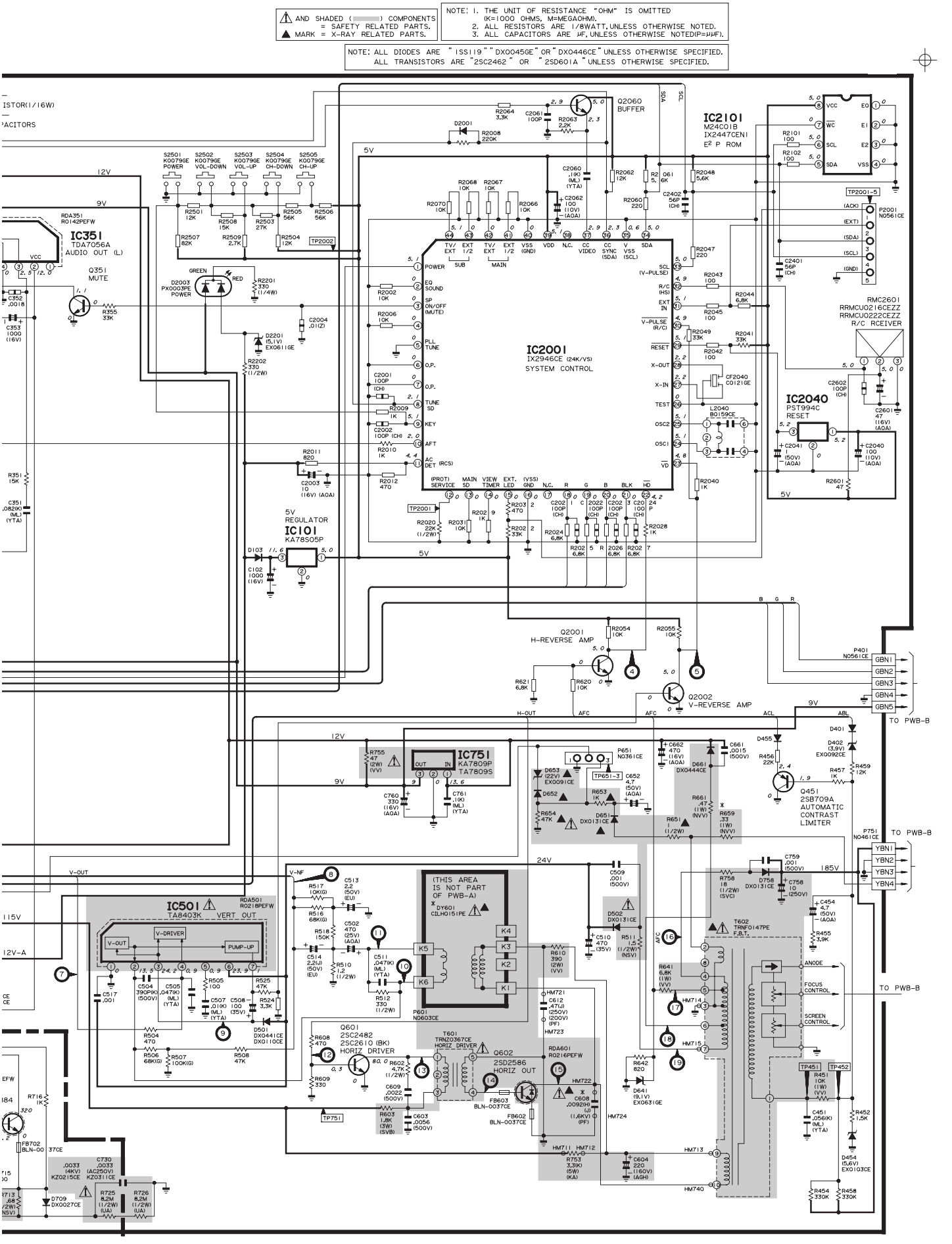


MODELS 20/21V-J200S BLOCK DIAGRAM



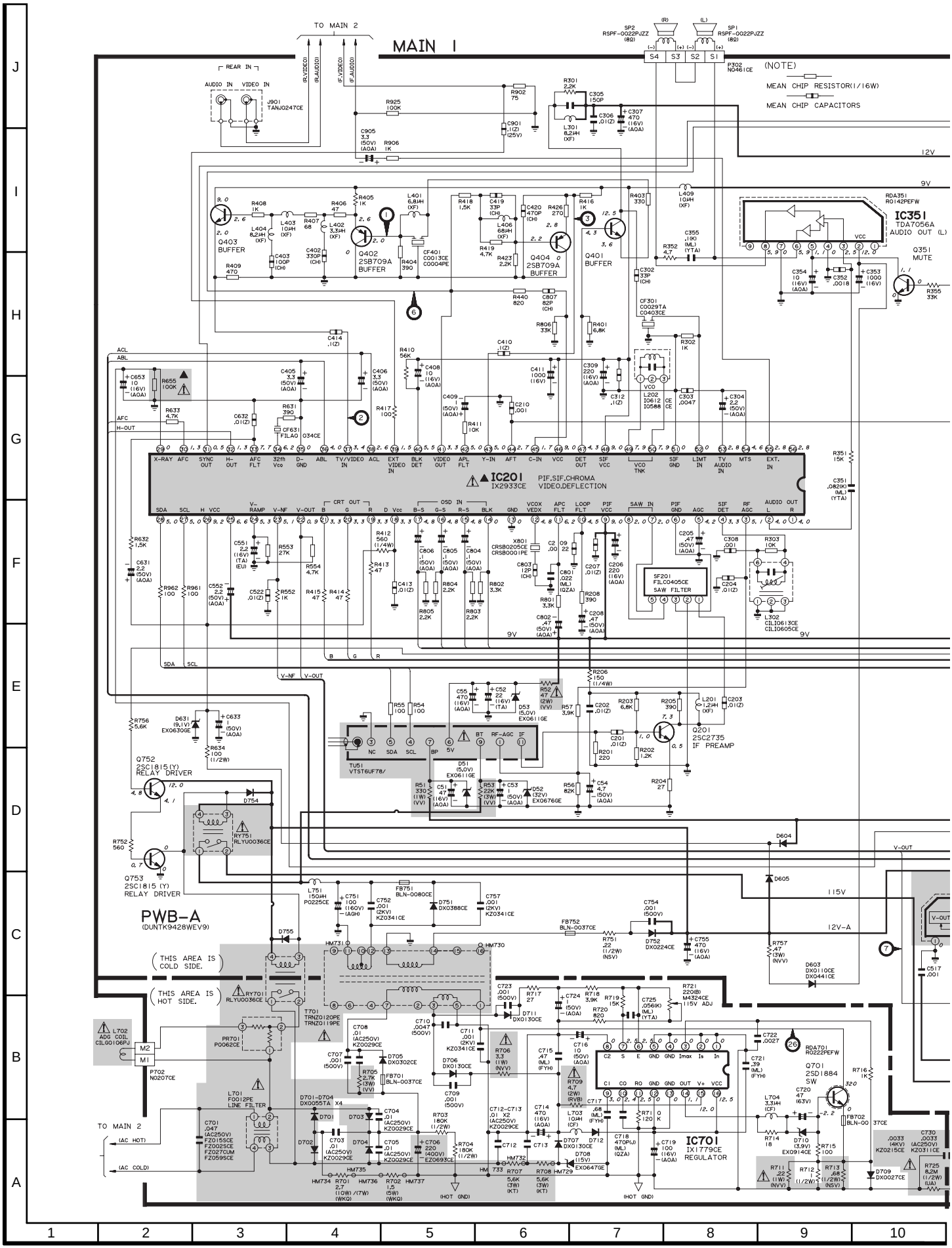
MODEL 20V-J100M SCHEMATIC DIAGRAM: MAIN-1 Unit


MAIN 1
TO MAIN 2
REAR IN
AUDIO IN
VIDEO IN
J901 TANJ0247CE
SP2 RSPF-0022PJZZ (8Ω)
SP1 RSPF-0022PJZZ (8Ω)
S4 S3 S2 S1
P302 N0461CE
(NOTE)
MEAN CHIP RESISTOR(1/16W)
MEAN CHIP CAPACITORS
Q403 BUFFER
Q402 2SB709A BUFFER
Q404 2SB709A BUFFER
Q401 BUFFER
IC351 TDA7056A AUDIO OUT
Q351 MUTE
IC201 IX2933CE PIF,SIF,CHROMA VIDEO,DEFLECTION
X-RAY AFC SYNC OUT H-OUT AFC FLT 32fh Vco D-GND ABL TV/VIDEO IN ACL EXT VIDEO IN BLK DET VIDEO OUT APL FLT Y-IN AFT C-IN VCC DET OUT SIF VCC VCO TNK SIF GND LIMT IN TV AUDIO IN MTS EXT. IN
SDA SCL H VCC V-RAMP V-NF V-OUT B G R D Vcc B-S G-S R-S BLK GND VCOX VEDX APC FLT LOOP FLT PIF VCC SAW IN PIF GND AGC SIF DET RF AGC AUDIO OUT L R
CRT OUT
OSD IN
IC701 IX1779CE REGULATOR
Q201 2SC2735 IF PREAMP
Q752 RELAY DRIVER 2SC1815(Y)
Q753 RELAY DRIVER 2SC1815(Y)
Q701 2SD1884 SW
SF201 F1LC04O5CE SAW FILTER
TU51 VT5T6UF78/
PWB-A (DUNTK9428WEV5)
THIS AREA IS COLD SIDE.
THIS AREA IS HOT SIDE.
TO MAIN 2
(AC HOT)
(AC COLD)
(HOT GND)
12V
9V
12V-A
11.5V
V-OUT


⚠ AND SHADED ( ) COMPONENTS = SAFETY RELATED PARTS.
▲ MARK = X-RAY RELATED PARTS.
NOTE: 1. THE UNIT OF RESISTANCE "OHM" IS OMITTED (K=1000 OHMS, M=MEGAOHM).
2. ALL RESISTORS ARE 1/8WATT, UNLESS OTHERWISE NOTED.
3. ALL CAPACITORS ARE μF, UNLESS OTHERWISE NOTED(P=μμF).
NOTE: ALL DIODES ARE "1SS119" "DX0045GE" OR "DX0446CE" UNLESS OTHERWISE SPECIFIED.
ALL TRANSISTORS ARE "2SC2462" OR "2SD601A" UNLESS OTHERWISE SPECIFIED.
IC351 TDA7056A AUDIO OUT (L)
Q351 MUTE
IC2101 M24C01B IX2447CEN1 E² P ROM
Q2060 BUFFER
IC2001 IX2946CE (24K/VS) SYSTEM CONTROL
IC2040 PST994C RESET
RMC2601 RRMCU0216CEZZ RRMCU0222CEZZ R/C RCEIVER
IC101 KA78S05P 5V REGULATOR
IC751 KA7809P TA7809S
IC501 TA8403K VERT OUT
Q2001 H-REVERSE AMP
Q2002 V-REVERSE AMP
Q451 2SB709A AUTOMATIC CONTRAST LIMITER
Q601 2SC2482 2SC2610 (BK) HORIZ DRIVER
Q602 2SD2586 HORIZ OUT
T601 TRNZ0367CE HORIZ DRIVER
T602 TRNF0147PE F.B.T.
(THIS AREA IS NOT PART OF PWB-A)
TO PWB-B
TO PWB-B
TO PWB-B

10	11	12	13	14	15	16	17	18	19

MODEL 21V-J100M SCHEMATIC DIAGRAM: MAIN-1 Unit



⚠ AND SHADED (▭) COMPONENTS = SAFETY RELATED PARTS.
▲ MARK = X-RAY RELATED PARTS.

NOTE: 1. THE UNIT OF RESISTANCE "OHM" IS OMITTED (K=1000 OHMS, M=MEGAOHM).
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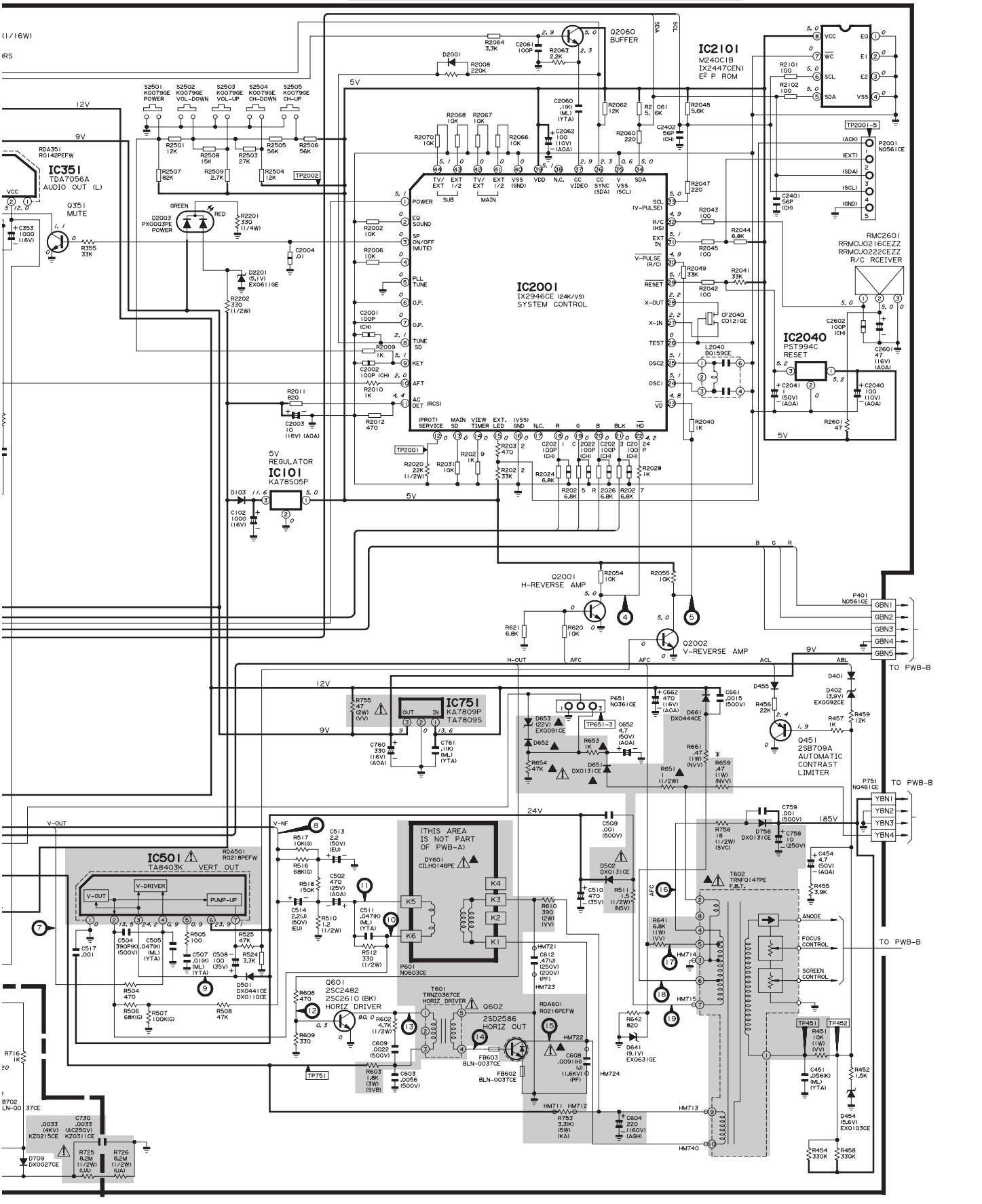
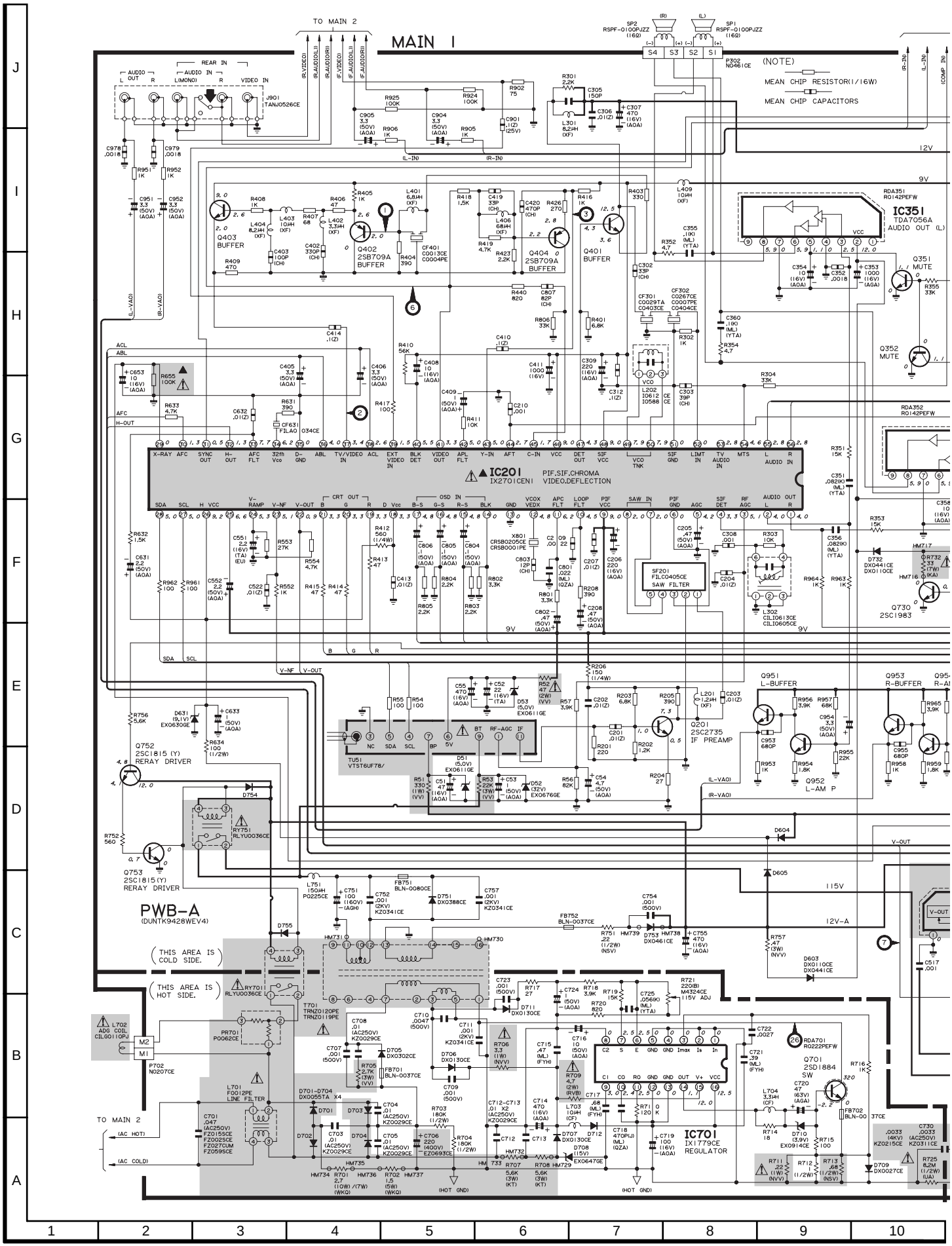
3. ALL CAPACITORS ARE μF, UNLESS OTHERWISE NOTED(P=μμF).

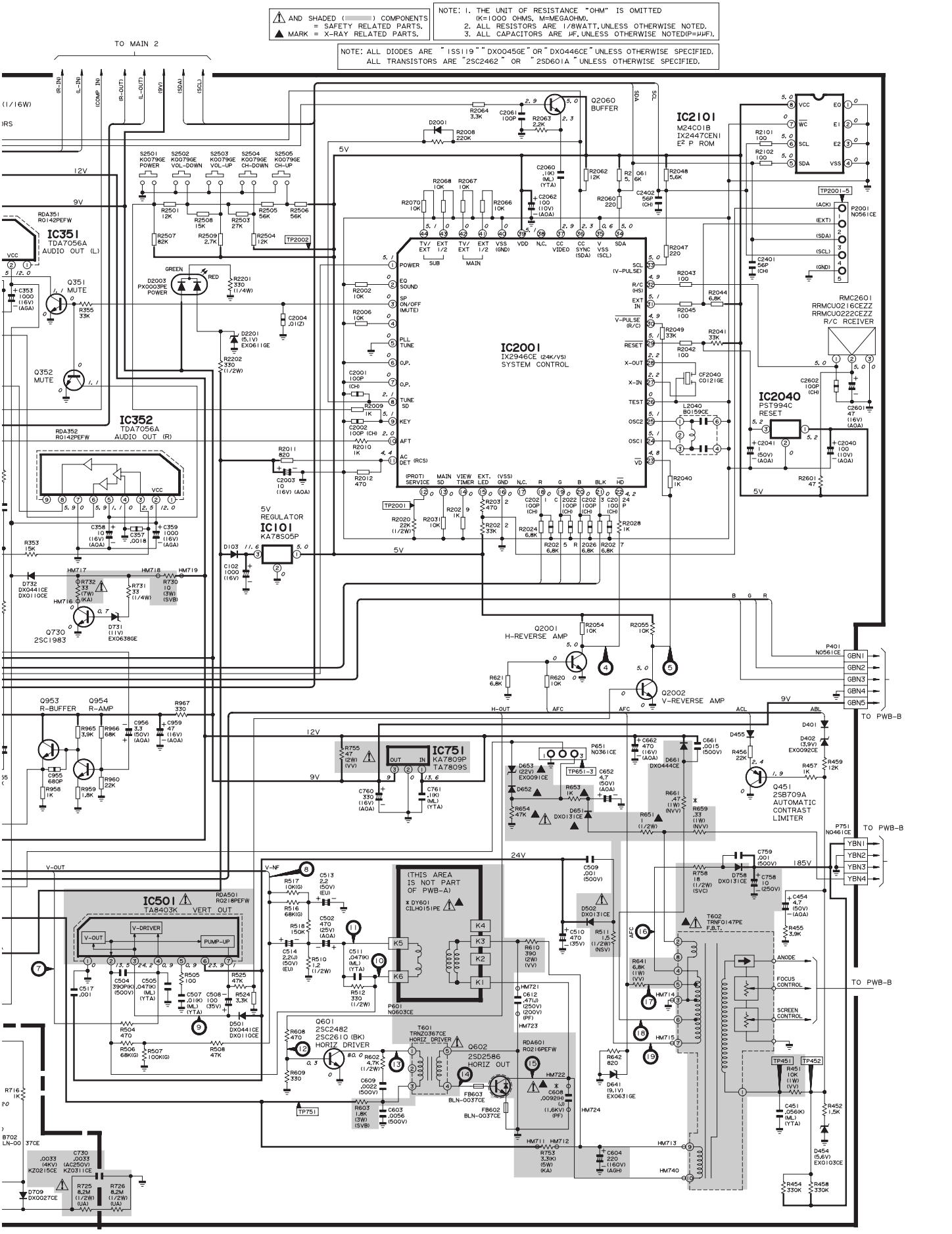
NOTE: ALL DIODES ARE "1SS119" "DX0045GE" OR "DX0446CE" UNLESS OTHERWISE SPECIFIED.
ALL TRANSISTORS ARE "2SC2462" OR "2SD601A" UNLESS OTHERWISE SPECIFIED.



10	11	12	13	14	15	16	17	18	19

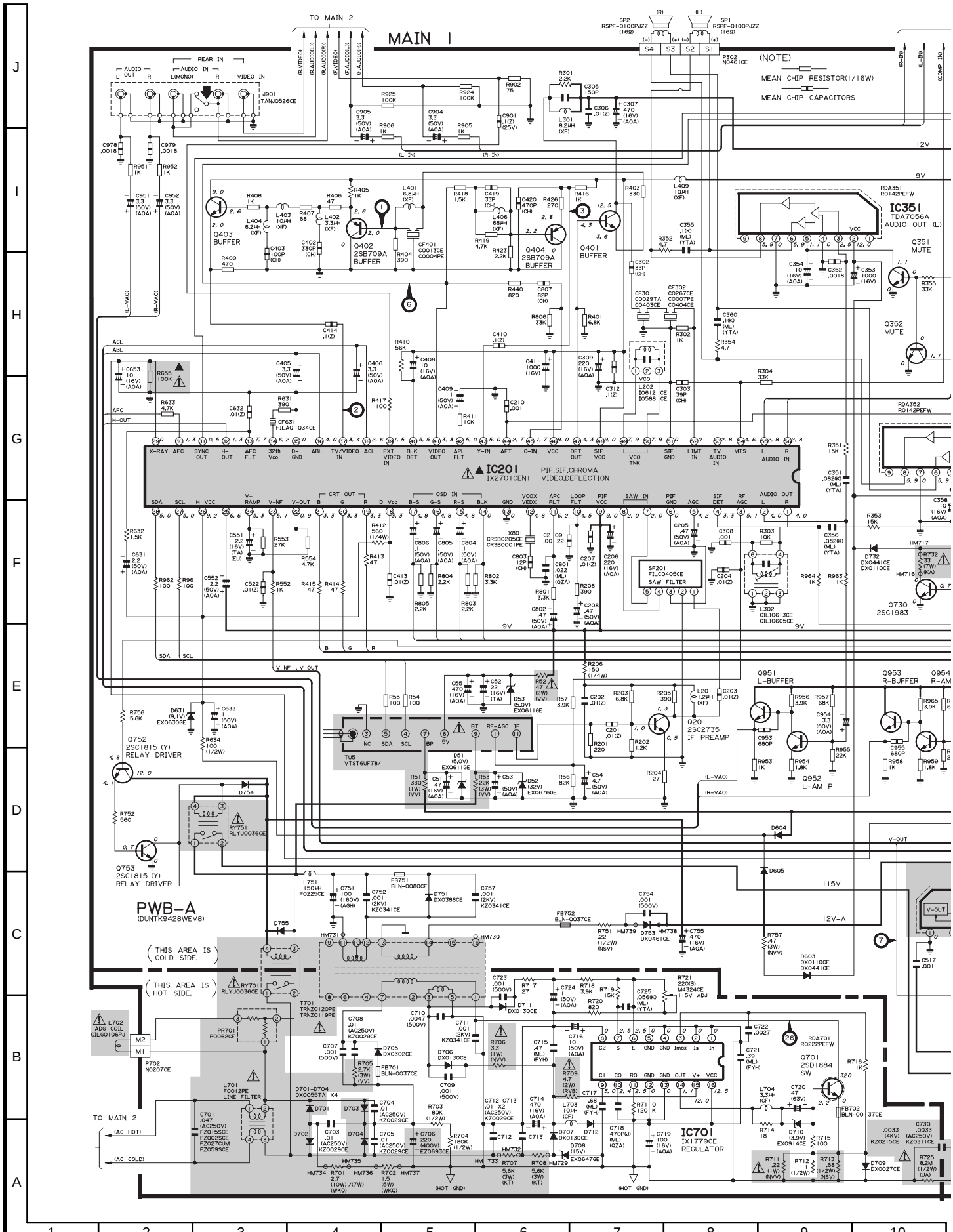
MODEL 20V-J200S SCHEMATIC DIAGRAM: MAIN-1 Unit

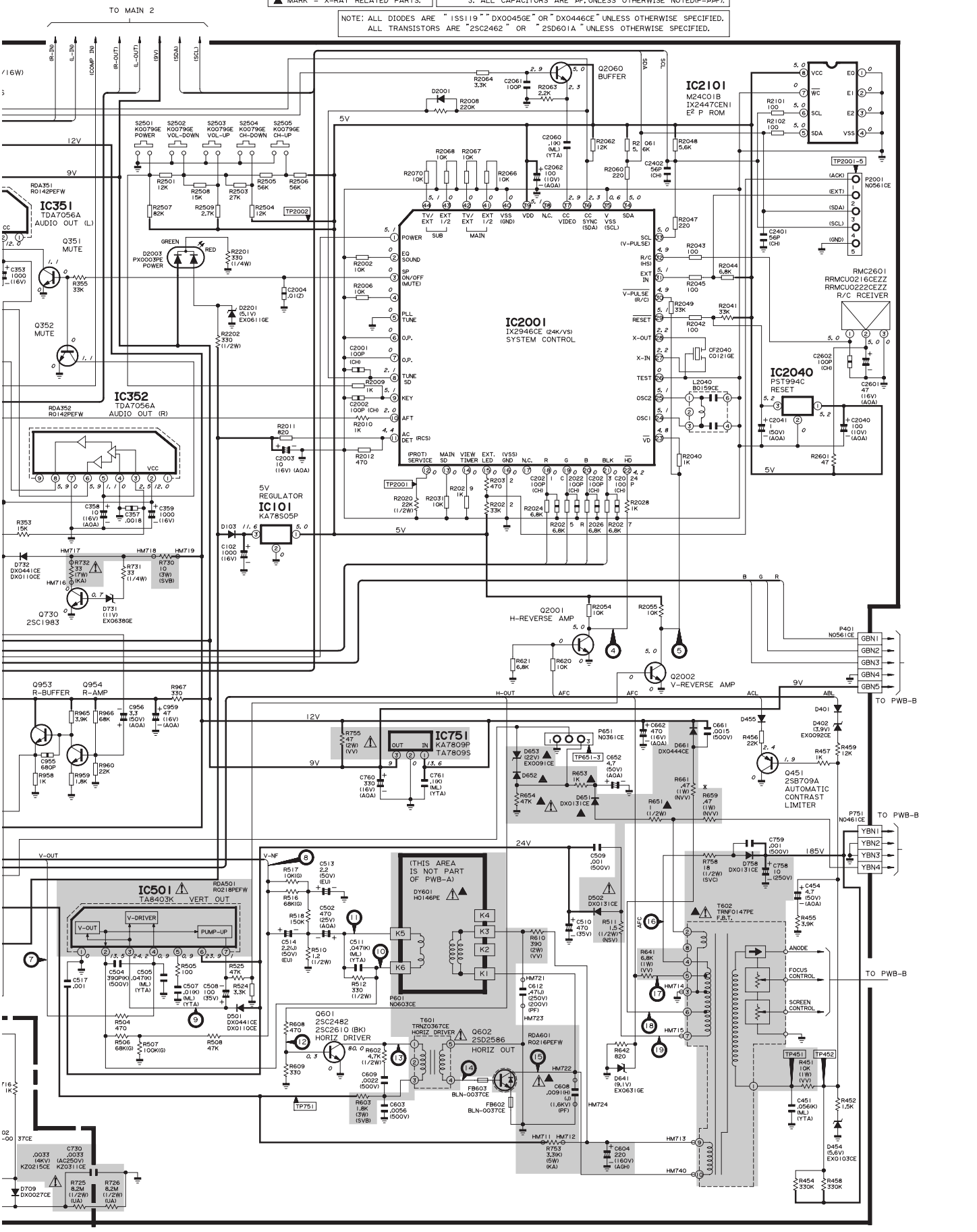



⚠ AND SHADED ( ) COMPONENTS = SAFETY RELATED PARTS.
▲ MARK = X-RAY RELATED PARTS.
NOTE: 1. THE UNIT OF RESISTANCE "OHM" IS OMITTED (K=1000 OHMS, M=MEGAOHM).
2. ALL RESISTORS ARE 1/8WATT, UNLESS OTHERWISE NOTED.
3. ALL CAPACITORS ARE μF, UNLESS OTHERWISE NOTED(P=μμF).
NOTE: ALL DIODES ARE "1SS119" "DX0045GE" OR "DX0446CE" UNLESS OTHERWISE SPECIFIED.
ALL TRANSISTORS ARE "2SC2462" OR "2SD601A" UNLESS OTHERWISE SPECIFIED.
TO MAIN 2
IC2101 M24C01B IX2447CEN1 E2 P ROM
IC2001 IX2946CE (24K/VS) SYSTEM CONTROL
IC351 TDA7056A AUDIO OUT (L)
IC352 TDA7056A AUDIO OUT (R)
IC101 KA78S05P 5V REGULATOR
IC751 KA7809P TA7809S
IC2040 PST994C RESET
IC501 TA8403K VERT. OUT
Q2060 BUFFER
Q2001 H-REVERSE AMP
Q2002 V-REVERSE AMP
Q730 2SC1983
Q731 2SB709A AUTOMATIC CONTRAST LIMITER
Q953 R-BUFFER
Q954 R-AMP
Q601 2SC2482 2SC2610 (BK) HORIZ DRIVER
Q602 2SD2586 HORIZ OUT
RMC2601 RRMCU0216CEZZ RRMCU0222CEZZ R/C RCEIVER
(THIS AREA IS NOT PART OF PWB-A)
TO PWB-B
12V
9V
5V
24V
185V

10	11	12	13	14	15	16	17	18	19

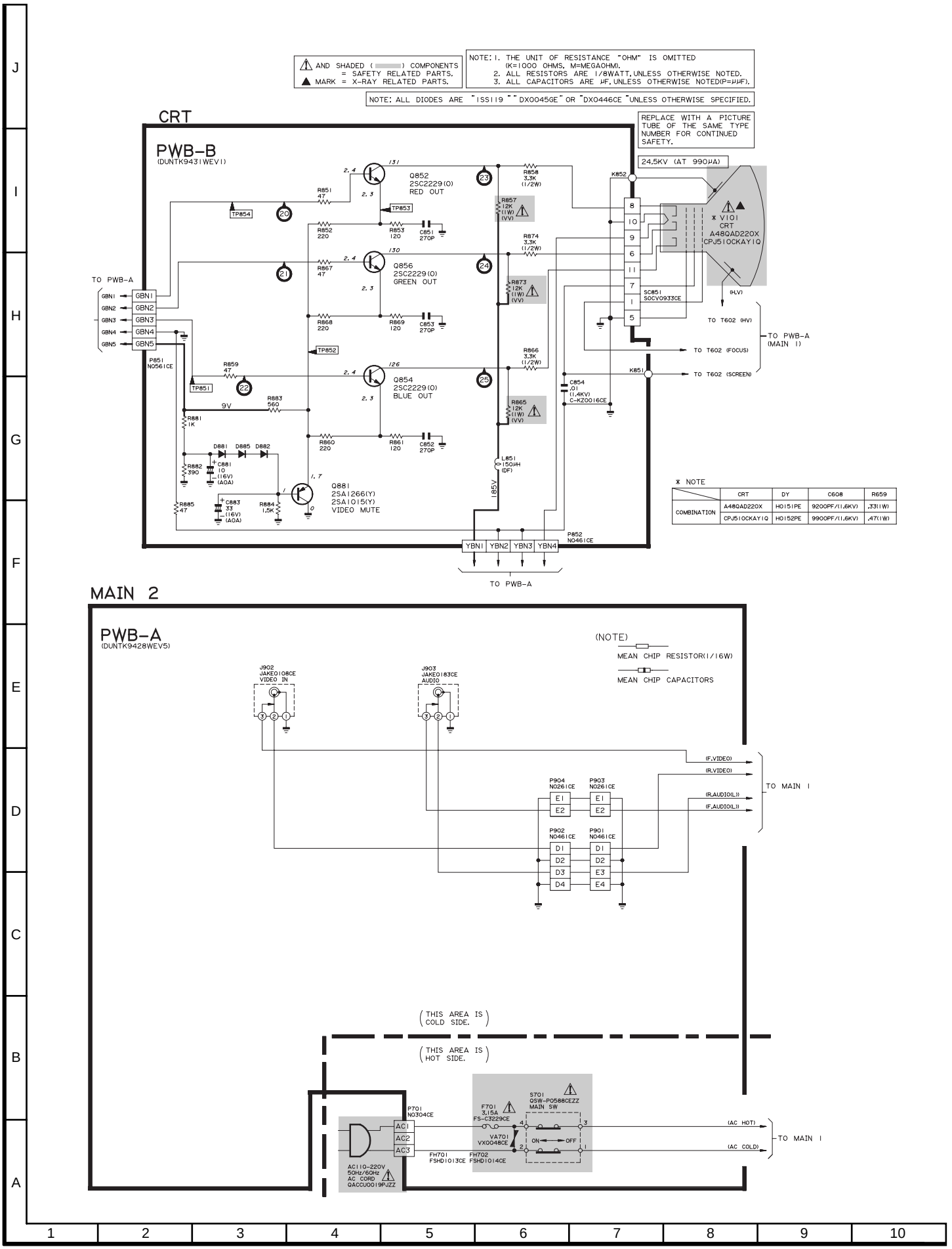
MODEL 21V-J200S SCHEMATIC DIAGRAM: MAIN-1 Unit



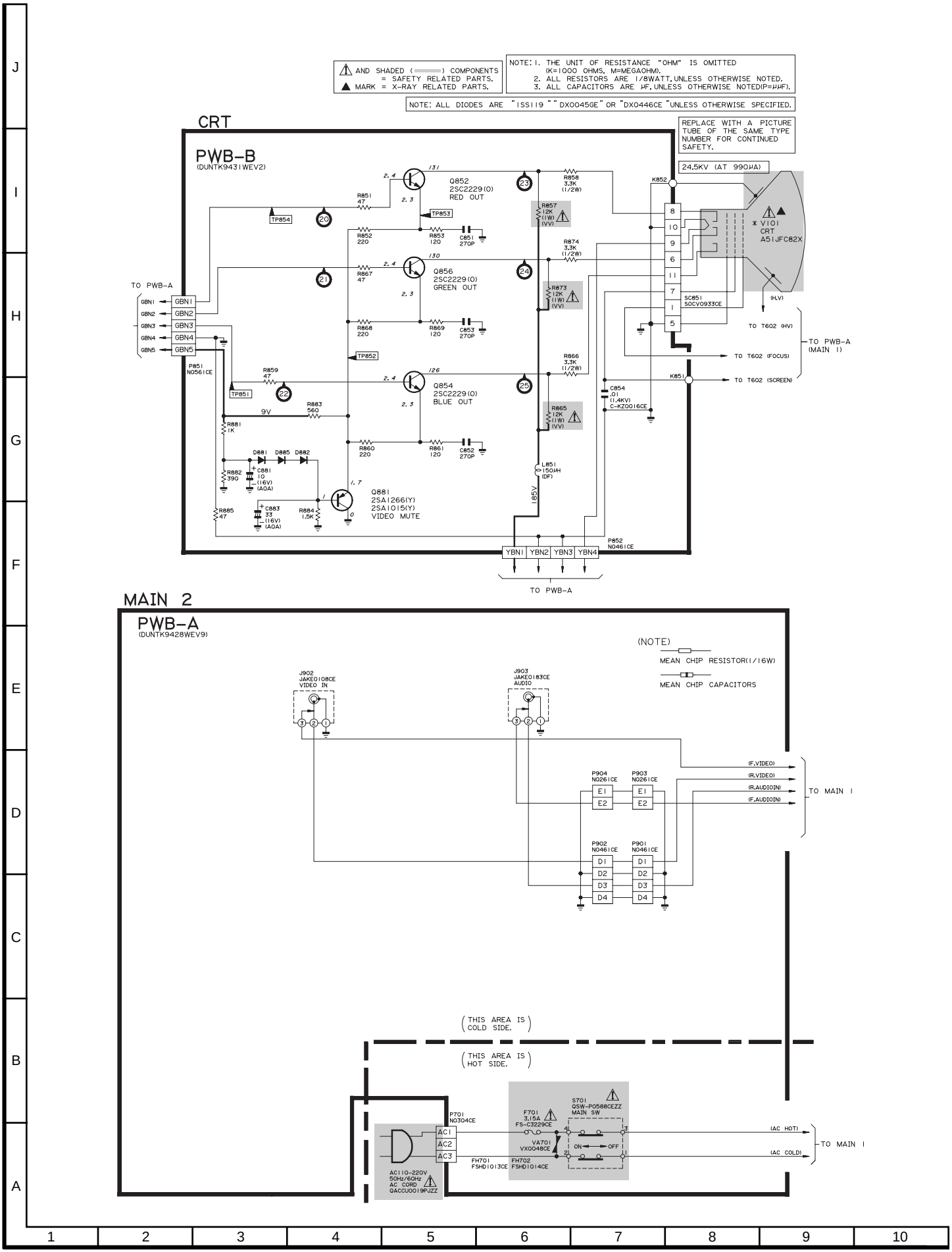

⚠ AND SHADED ( ) COMPONENTS = SAFETY RELATED PARTS.
▲ MARK = X-RAY RELATED PARTS.
NOTE: 1. THE UNIT OF RESISTANCE "OHM" IS OMITTED (K=1000 OHMS, M=MEGAOHM).
2. ALL RESISTORS ARE 1/8WATT, UNLESS OTHERWISE NOTED.
3. ALL CAPACITORS ARE μF, UNLESS OTHERWISE NOTED(P=μμF).
NOTE: ALL DIODES ARE "1SS119" "DX0045GE" OR "DX0446CE" UNLESS OTHERWISE SPECIFIED.
ALL TRANSISTORS ARE "2SC2462" OR "2SD601A" UNLESS OTHERWISE SPECIFIED.
TO MAIN 2
IC2101 M24C01B IX2447CEN1 E2 P ROM
IC2001 IX2946CE (24K/VS) SYSTEM CONTROL
IC2040 PST994C RESET
IC351 TDA7056A AUDIO OUT (L)
IC352 TDA7056A AUDIO OUT (R)
IC101 KA78S05P 5V REGULATOR
IC751 KA7809P TA7809S
IC501 TA8403K VERT OUT
Q2060 BUFFER
Q2001 H-REVERSE AMP
Q2002 V-REVERSE AMP
Q953 R-BUFFER
Q954 R-AMP
Q451 2SB709A AUTOMATIC CONTRAST LIMITER
Q601 2SC2482 2SC2610 (BK) HORIZ DRIVER
Q602 2SD2586 HORIZ OUT
Q351 MUTE
Q352 MUTE
Q730 2SC1983
RMC2601 RRMCU0216CEZZ RRMCU0222CEZZ R/C RCEIVER
TO PWB-B
TO PWB-B
TO PWB-B
(THIS AREA IS NOT PART OF PWB-A)
5V
9V
12V
24V
185V

10	11	12	13	14	15	16	17	18	19

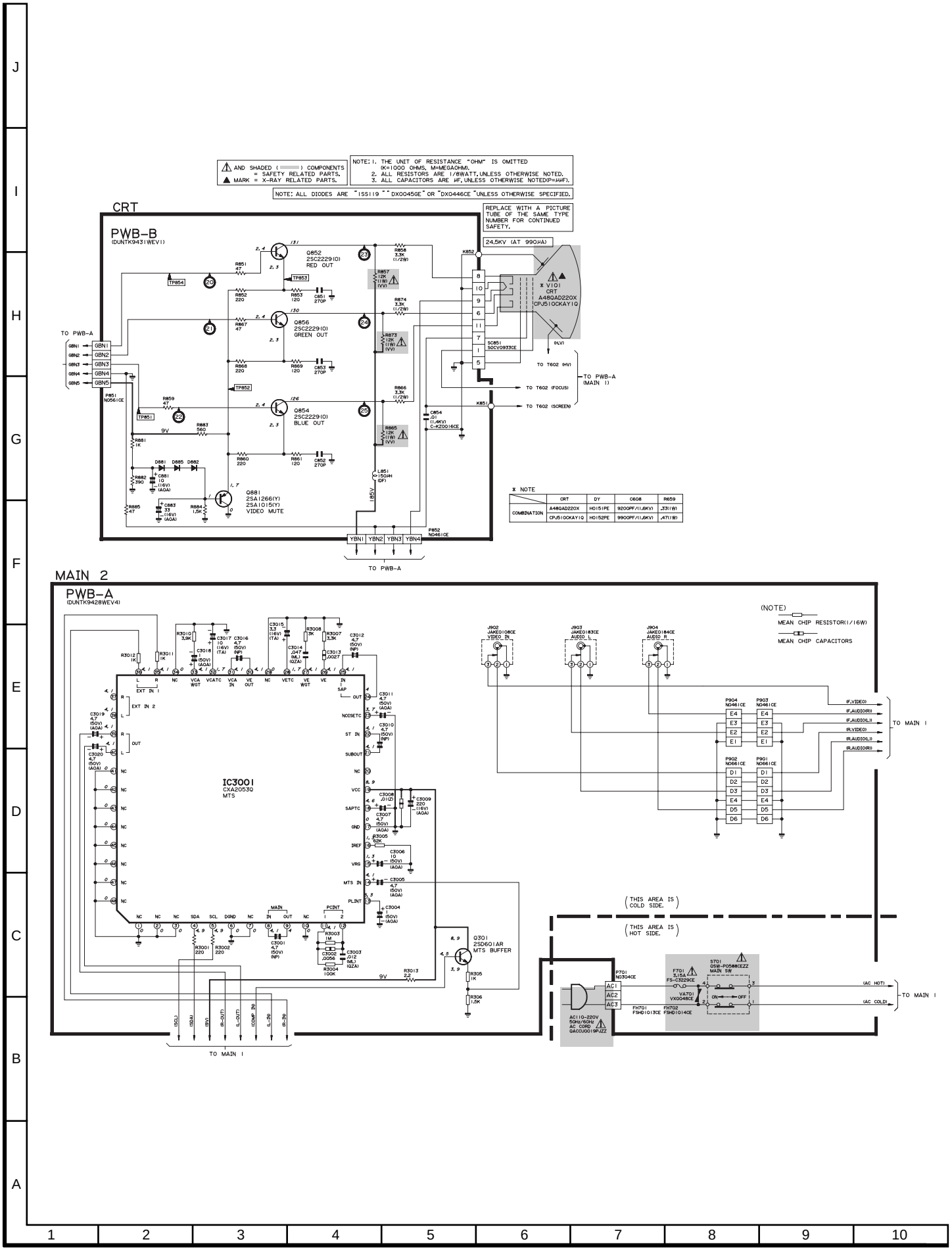
MODEL 20V-J100M SCHEMATIC DIAGRAM: MAIN-2/CRT Unit



MODEL 21V-J100M SCHEMATIC DIAGRAM: MAIN-2/CRT Unit

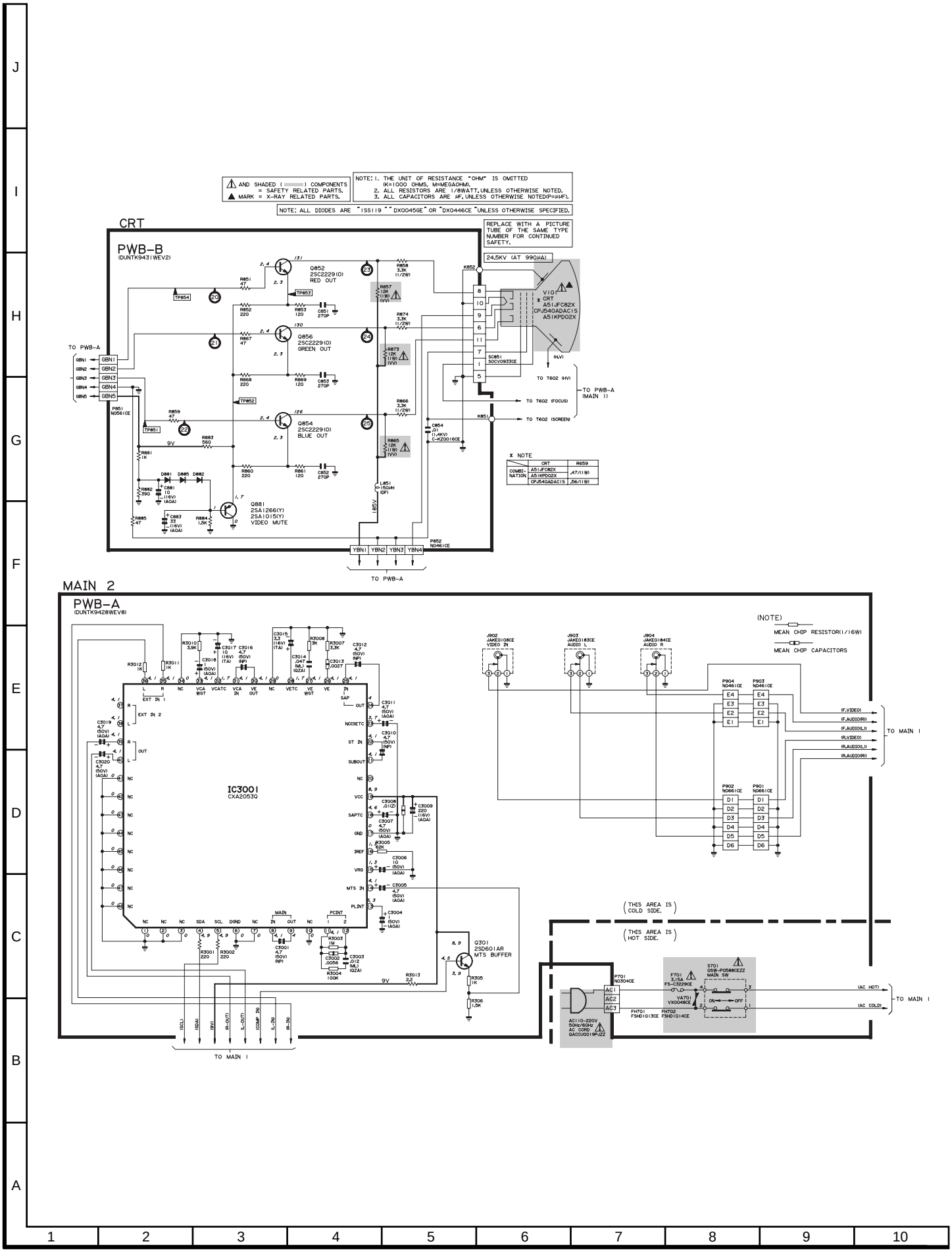


MODEL 20V-J200S SCHEMATIC DIAGRAM: MAIN-2/CRT Unit

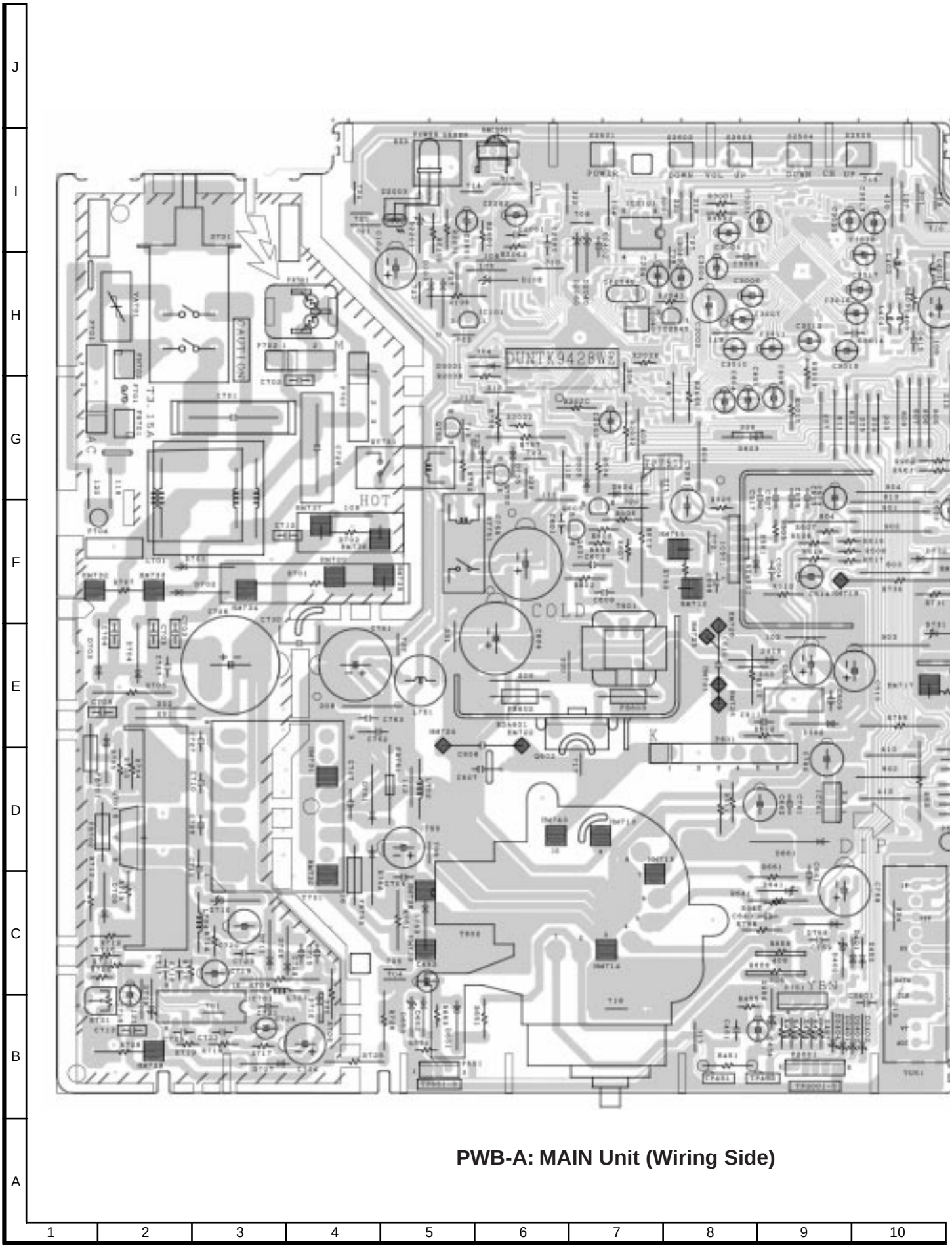


x NOTE	CRT	DY	C608	R659
COMBINATION	A48QAD220X	H0151PE	9200PF/1.6KV)	.33(1W)
	CPJ510CKAY1Q	H0152PE	9900PF/1.6KV)	.47(1W)

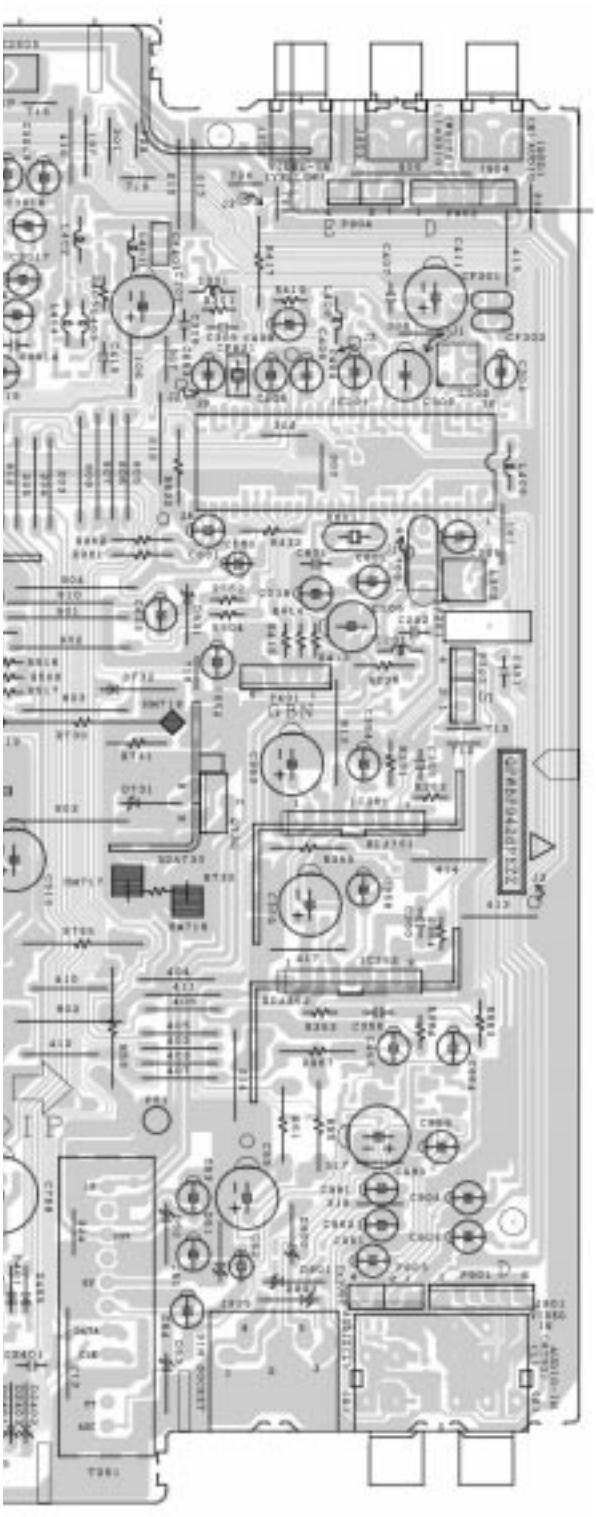
MODEL 21V-J200S SCHEMATIC DIAGRAM: MAIN-2/CRT Unit

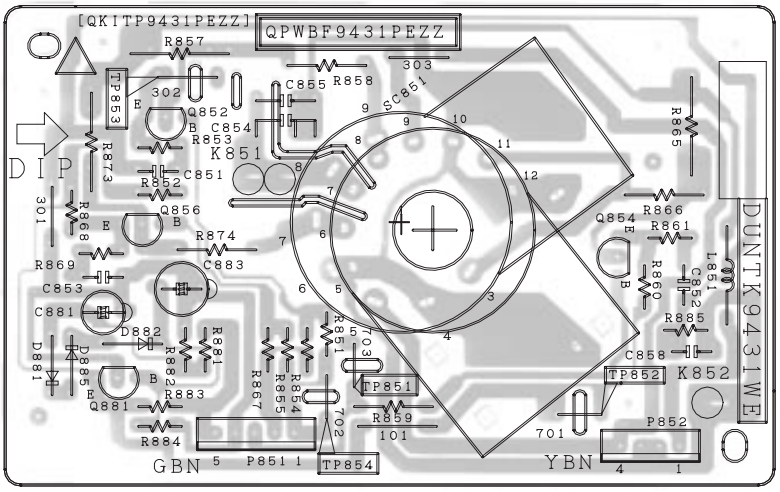


PRINTED WIRING BOARD ASSEMBLIES



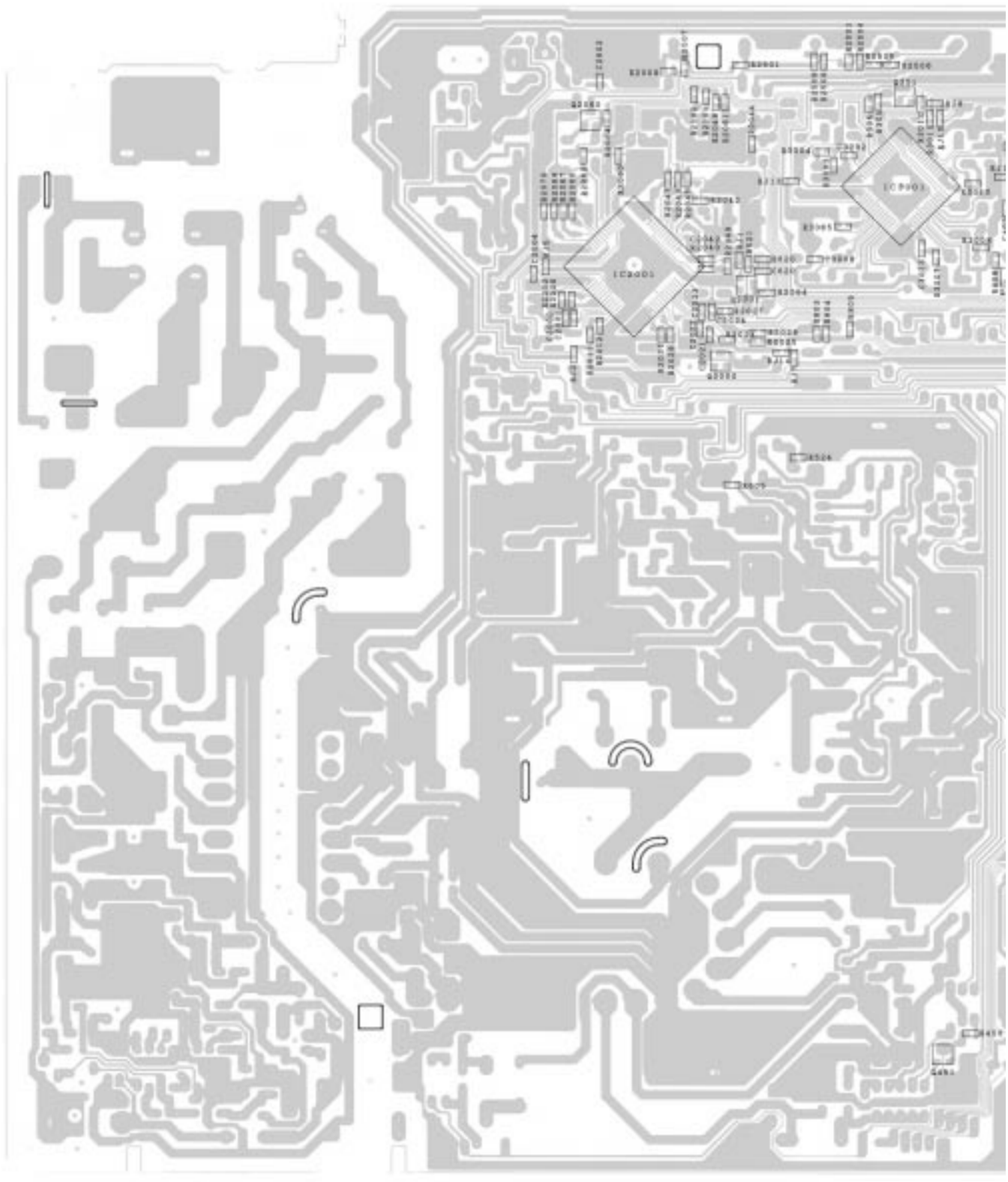
PWB-A: MAIN Unit (Wiring Side)



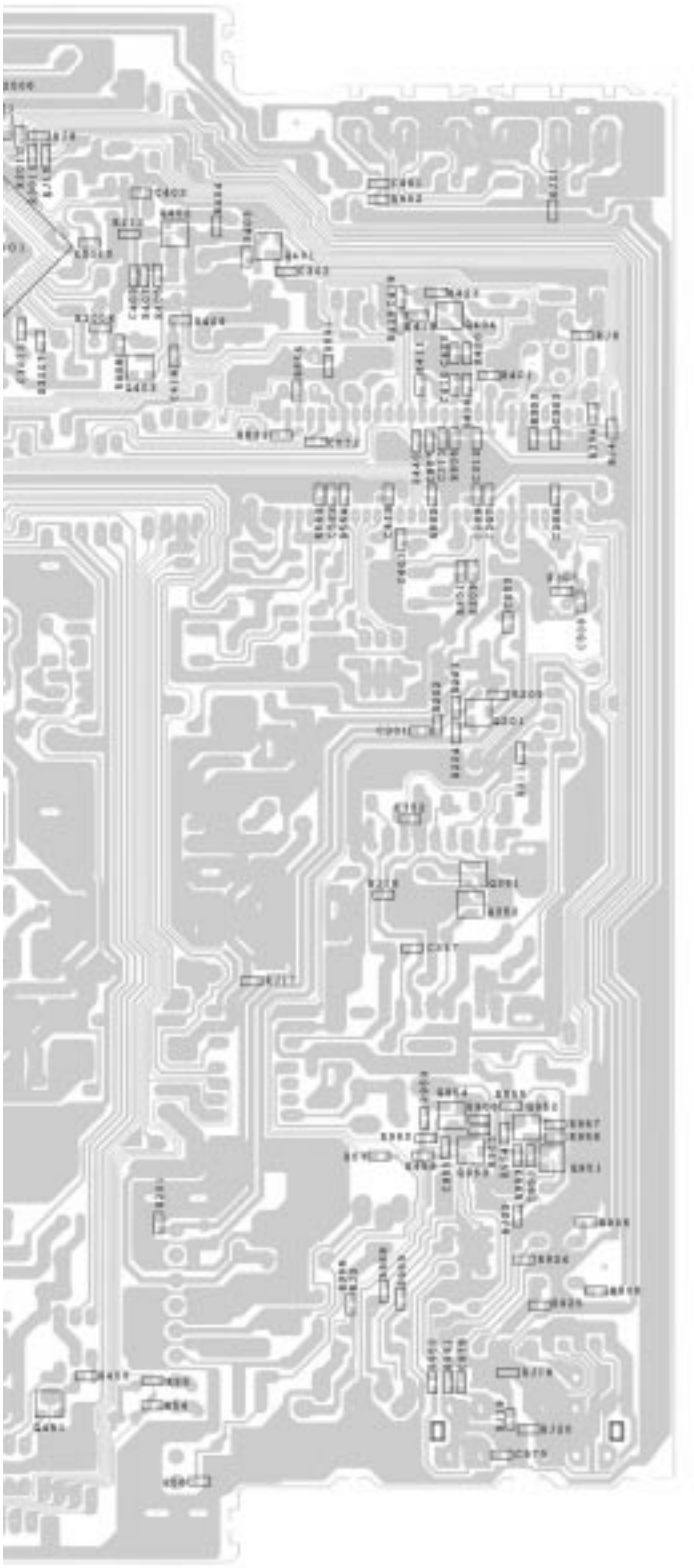


PWB-B: CRT Unit (Wiring Side)

10	11	12	13	14	15	16	17	18	19



PWB-A: MAIN Unit (Chip Parts Side)



10	11	12	13	14	15	16	17	18	19

PARTS LIST

PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual: electrical components having such features are identified by "⚠" in the Replacement Parts Lists.
The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION
5. CODE
6. QUANTITY

▲ MARK : X-RAY RELATED PARTS

MARK ★: SPARE PARTS-DELIVERY SECTION

Ref. No.	Part No.	★	Description	Code
PICTURE TUBE				
▲ ⚠ V101	VB48QAD220X*S	J	Picture Tube (20V-J100M/J200S)	CB
▲ ⚠ V101	VB51JFC82X/*S	–	Picture Tube (21V-J100M/J200S)	—
⚠ L702	RCiLG0110PJZZ	–	Degaussing Coil (20V-J100M/J200S)	—
⚠ L702	RCiLG0106PJZZ	–	Degaussing Coil (21V-J100M/J200S)	—
▲ ⚠ DY601	RCiLH0151PEZZ	R	Deflection Yoke (20V-J100M/J200S)	BE
▲ ⚠ DY601	RCiLH0146PEZZ	R	Deflection Yoke (21V-J100M/J200S)	BF
	MSPRT0001PEFJ	R	Spring for CRT	AC
	PMAGF3003CEZZ	J	Magnet Ass'y -Purity and Static Convergence	AK
	PSPAG0017PEZZ	R	Spacer	AC

20V-J100M/J200S

	CRT	DY	C608	R659
CONBINATION	A48QAD220X	H0151PE	9200PF/(1.6KV)	.33(1W)
	CPJ51OCKAY1Q	H0152PE	9900PF/(1.6KV)	.47(1W)

21V-J100M/J200S

	CRT	R659
CONBINATION	A51JFC62X	.47(1W)
	A51KPD0X	
	CPJ540ADAC1S	.56/(1W)

PRINTED WIRING BOARD ASSEMBLIES *(NOT REPLECEMENT ITEM)*

PWB-A DUNTK9428WEV5	–	MAIN Unit (20V-J100M)	—
PWB-A DUNTK9428WEV9	–	MAIN Unit (21V-J100M)	—
PWB-A DUNTK9428WEV4	–	MAIN Unit (20V-J200S)	—
PWB-A DUNTK9428WEV8	–	MAIN Unit (21V-J200S)	—
PWB-B DUNTK9431WEV1	–	CRT Unit(20V-J100M/J200S)	—
PWB-B DUNTK9431WEV2	–	CRT Unit(21V-J100M/J200S)	—

Ref. No.	Part No.	★	Description	Code
PWB-A:	**DUNTK9428WEV5**		**(20V-J100M)**	
PWB-A:	**DUNTK9428WEV9**		**(21V-J100M)**	
PWB-A:	**DUNTK9428WEV4**		**(20V-J200S)**	
PWB-A:	**DUNTK9428WEV8**		**(21V-J200S)**	
MAIN UNIT				
TUNER				
NOTE:	***THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY.***			
⚠ TU51	VTUVTST6UF78/	J	Vhf Tuner	BD
INTEGRATED CIRCUITS				
IC101	VHiKA78S05P-1	J	KIA78S05P	AD
▲ ⚠ IC201	RH-iX2933CEZZ	J	IX2933CE (20V-J100M/21V-J100M)	AX
▲ ⚠ IC201	RH-iX2701CEN1	J	IX2701CE (20V-J200S/21V-J200S)	AY
IC351	VHiTDA7056A-1	J	TDA7056A	AP
IC352	VHiTDA7056A-1	J	TDA7056A (20V-J200S/21V-J200S Only)	AP
⚠ IC501	VHiTA8403K/-1	J	TA8403K	AL
IC701	RH-iX1779CEZZ	J	IX1779CE	AR
⚠ IC751	VHiKA7809Pi-1	J	KIA7809Pi	AE
IC2001	RH-iX2946CEZZ	J	IX2946CE	AX
IC2040	VHiPST994C/-1	J	PST994C	AD
IC2101	VHiM24C01B/-1	J	M24C01	AF
IC3001	VHiCXA2053Q-1S	J	CXA2053Q (20V-J200S/21V-J200S Only)	AX
TRANSISTORS				
★You can substitute "VS2SC2462-C-1" for "VS2SD601AR/-1".				
Q201	VS2SC2735//1E	J	2SC2735	AC
Q301	VS2SD601AR/-1	J	2SD601AR (20V-J200S/21V-J200S Only)	AC
Q351	VS2SC2462-C-1	J	2SC2462	AB
Q352	VS2SC2462-C-1	J	2SC2462 (20V-J200S/21V-J200S Only)	AB
Q401	VS2SD601AR/-1	J	2SD601AR	AC
Q402	VS2SB709AR/-1	J	2SB709AR	AC
Q403	VS2SD601AR/-1	J	2SD601AR	AC
Q404	VS2SB709AR/-1	J	2SB709AR	AC
Q451	VS2SB709AR/-1	J	2SB709AR	AC
Q601	VS2SC2482//-1	J	2SC2482	AD
⚠ Q602	VS2SD2586//1E	J	2SD2586	AM
Q701	VS2SD1884//-1	J	2SD1884	AN
Q730	VS2SC1983//-2	J	2SC1983 (20V-J200S/21V-J200S Only)	AF
Q752	VS2SC1815YW-1	J	2SC1815(Y)	AC
Q753	VS2SC1815YW-1	J	2SC1815(Y)	AC
Q951	VS2SC2462-C-1	J	2SC2462 (20V-J200S/21V-J200S Only)	AB
Q952	VS2SC2462-C-1	J	2SC2462 (20V-J200S/21V-J200S Only)	AB
Q953	VS2SC2462-C-1	J	2SC2462 (20V-J200S/21V-J200S Only)	AB
Q954	VS2SC2462-C-1	J	2SC2462 (20V-J200S/21V-J200S Only)	AB
Q2001	VS2SD601AR/-1	J	2SD601AR	AC
Q2002	VS2SD601AR/-1	J	2SD601AR	AC
Q2060	VS2SC2462-C-1	J	2SC2462	AB
DIODES				
★You can substitute "RH-DX0045GEZZ" and "RH-DX0446CEZZ" for "VHD1SS119//-1".				
D51	RH-EX0611GEZZ	J	Zener, EX0611GE	AA
D52	RH-EX0676GEZZ	J	Zener, EX0676GE	AA
D53	RH-EX0611GEZZ	J	Zener, EX0611GE	AA
D103	VHD1SS119//-1	J	1SS119	AB
D401	VHD1SS119//-1	J	1SS119	AB
D402	RH-EX0092CEZZ	J	Zener, EX0092CE	AB
D454	RH-EX0103CEZZ	J	Zener, EX0103CE	AB
D455	VHD1SS119//-1	J	1SS119	AB
D501	RH-DX0441CEZZ	J	DX0441CE	AC

PWB-A: DUNTK9428WEV5 (20V-J100M)
PWB-A: DUNTK9428WEV9 (21V-J100M)
PWB-A: DUNTK9428WEV4 (20V-J200S)
PWB-A: DUNTK9428WEV8 (21V-J200S)

MAIN UNIT (Continued)

Ref. No.	Part No.	★	Description	Code
⚠ D502	RH-DX0131CEZZ	J	DX0131CE	AC
D603	RH-DX0441CEZZ	J	DX0441CE	AC
D604	VHD1SS119//-1	J	1SS119	AB
D605	VHD1SS119//-1	J	1SS119	AB
D631	RH-EX0630GEZZ	J	Zener, EX0630GE	AA
D641	RH-EX0631GEZZ	J	Zener, EX0631GE	AA
▲ ⚠ D651	RH-DX0131CEZZ	J	DX0131CE	AC
▲ ⚠ D652	VHD1SS119//-1	J	1SS119	AB
▲ ⚠ D653	RH-EX0091CEZZ	J	Zener, EX0091CE	AB
⚠ D661	RH-DX0444CEZZ	J	DX0444CE	AH
⚠ D701	RH-DX0055TAZZ	J	DX0055TA	AD
⚠ D702	RH-DX0055TAZZ	J	DX0055TA	AD
⚠ D703	RH-DX0055TAZZ	J	DX0055TA	AD
⚠ D704	RH-DX0055TAZZ	J	DX0055TA	AD
D705	RH-DX0302CEZZ	J	DX0302CE	AC
D706	RH-DX0130CEZZ	J	DX0130CE	AE
D707	RH-DX0130CEZZ	J	DX0130CE	AE
D708	RH-EX0647GEZZ	J	Zener, EX0647GE	AA
D709	RH-DX0027CEZZ	J	DX0027CE	AE
D710	RH-EX0914CEZZ	J	Zener, EX0914CE	AD
D711	RH-DX0130CEZZ	J	DX0130CE	AE
D712	VHD1SS119//-1	J	1SS119	AB
D731	RH-EX0638GEZZ	J	Zener, EX0638GE (20V-J200S/21V-J200S Only)	AB
D732	RH-DX0441CEZZ	J	DX0441CE (20V-J200S/21V-J200S Only)	AC
D751	RH-DX0388CEZZ	J	DX0388CE	AE
D752	RH-DX0224CEZZ	J	DX0224CE (20V-J100S/21V-J100S Only)	AB
D753	RH-DX0461CEZZ	J	DX0461CE (20V-J200S/21V-J200S Only)	AG
D754	VHD1SS119//-1	J	1SS119	AB
D755	VHD1SS119//-1	J	1SS119	AB
⚠ D758	RH-DX0131CEZZ	J	DX0131CE	AC
D2001	VHD1SS119//-1	J	1SS119	AB
D2003	RH-PX0003PEZZ	R	LED, Power	AF
D2201	RH-EX0611GEZZ	J	Zener, EX0611GE	AA
⚠ VA701	RH-VX0048CEZZ	J	Varistor	AE

PACKAGED CIRCUITS

⚠ PR701	RMPTP0062CEZZ	J	Packaged Circuit	AH
X801	RCRSB0001PEZZ	R	Crystal, CRSB0001PE	AL

COILS AND TRANSFORMERS

CF301	RFiLC0403CEZZ	J	Filter, C0403CE	AE
CF302	RFiLC0404CEZZ	J	Filter, C0404CE (20V-J200S/21V-J200S Only)	AF
CF401	RFiLC0013CEZZ	J	Filter,C0013CE	AE
CF631	RFiLA0034CEZZ	J	Filter, A0034CE	AD
CF2040	RFiLC0121GEZZ	J	Filter, C0121GE	AD
L201	VP-XF1R2K0000	J	Peaking 1.2µH	AB
L202	RCiLi0612CEZZ	J	If Coil	AE
L301	VP-XF8R2K0000	J	Peaking 8.2µH	AB
L302	RCiLi0613CEZZ	J	If Coil	AE
L401	VP-XF6R8K0000	J	Peaking 6.8µH	AB
L402	VP-XF3R3K0000	J	Peaking 3.3µH	AB
L403	VP-XF100K0000	J	Peaking 10µH	AB
L404	VP-XF8R2K0000	J	Peaking 8.2µH	AB
L406	VP-XF680K0000	J	Peaking 68µH	AB
L409	VP-XF100K0000	J	Peaking 10µH	AB
⚠ L701	RCiLF0012PEZZ	R	Line Filter Coil	AN
L703	VP-CF100K0000	J	Peaking 10µH	AB
L704	VP-CF3R3K0000	J	Peaking 3.3µH	AB
L751	RCiLP0225CEZZ	J	Coil 150µH	AF
L2040	RCiLB0159CEZZ	J	Oscillation Coil	AE
SF201	RFiLC0405CEZZ	J	Filter, C0405CE	AH
⚠ T601	RTRNZ0367CEZZ	J	Transformer	AK
▲ ⚠ T602	RTRNF0147PEZZ	R	H-Volt Transformer	BC
⚠ T701	RTRNZ0120PEZZ	R	Transformer	AX

CONTROL

R721	RVR-M4324CEZZ	J	220(B), 115V ADJ.	AC

CAPACITORS

[EL.··· Electrolytic,M-Poly.··· Metalized Polypro Film]

C51	VCEA0A1CW476M	J	47	16V	EL.	AB
C52	VCSATA1CE226K	J	22	16V	Tantalum_(N.P)	AD
C53	VCEA0A1HW105M	J	1	50V	EL.	AB
C54	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C55	VCEA0A1CW477M	J	470	16V	EL.	AC
C102	VCEAGA1CW108M	J	1000	16V	EL.	AD
C201	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C202	VCKYPA1HF103Z	J	0.01	50V	Ceramic	AA
C203	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C204	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C205	VCEA0A1HW474M	J	0.47	50V	EL.	AB
C206	VCEA0A1CW227M	J	220	16V	EL.	AC
C207	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C208	VCEA0A1HW474M	J	0.47	50V	EL.	AB
C209	VCKYCY1HB222K	J	2200p	50V	Ceramic	AA
C210	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C302	VCCCCY1HH330J	J	33p	50V	Ceramic	AA
C303	VCKYCY1HB472K	J	4700p (20V-J100M/21V-J100M)	50V	Ceramic	AA
C303	VCCCCY1HH390J	J	39p (20V-J200S/21V-J200S)	50V	Ceramic	AA
C304	VCEA0A1HW225M	J	2.2 (20V-J100M/21V-J100M Only)	50V	EL.	AB
C305	VCKYPA1HB151K	J	150p	50V	Ceramic	AA
C306	VCKYPA1HF103Z	J	0.01	50V	Ceramic	AA
C307	VCEA0A1CW477M	J	470	16V	EL.	AC
C308	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C309	VCEA0A1CW227M	J	220	16V	EL.	AC
C312	VCKYCY1EF104Z	J	0.1	25V	Ceramic	AA
C351	VCQYTA1HM823K	J	0.082	50V	Mylar	AB
C352	VCKYCY1HB182K	J	1800p	50V	Ceramic	AA
C353	VCEAGA1CW108M	J	1000	16V	EL.	AD
C354	VCEA0A1CW106M	J	10	16V	EL.	AB
C355	VCQYTA1HM104K	J	0.1	50V	Mylar	AC
C356	VCQYTA1HM823K	J	0.082 (20V-J200S/21V-J200S Only)	50V	Mylar	AB
C357	VCKYCY1HB182K	J	1800p (20V-J200S/21V-J200S Only)	50V	Ceramic	AA
C358	VCEA0A1CW106M	J	10 (20V-J200S/21V-J200S Only)	16V	EL.	AB
C359	VCEAGA1CW108M	J	1000 (20V-J200S/21V-J200S Only)	16V	EL.	AD
C360	VCQYTA1HM104K	J	0.1 (20V-J200S/21V-J200S Only)	50V	Mylar	AC
C402	VCCCCY1HH331J	J	330p	50V	Ceramic	AA
C403	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C405	VCEA0A1HW335M	J	3.3	50V	EL.	AB
C406	VCEA0A1HW335M	J	3.3	50V	EL.	AB
C408	VCEA0A1CW106M	J	10	16V	EL.	AB
C409	VCEA0A1HW105M	J	1	50V	EL.	AB
C410	VCKYCY1EF104Z	J	0.1	25V	Ceramic	AA
C411	VCEAGA1CW108M	J	1000	16V	EL.	AD
C413	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C414	VCKYCY1EF104Z	J	0.1	25V	Ceramic	AA
C419	VCCCCY1HH330J	J	33p	50V	Ceramic	AA
C420	VCCCCY1HH471J	J	470p	50V	Ceramic	AA
C451	VCQYTA1HM563K	J	0.056	50V	Mylar	AB
C454	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C502	VCEA0A1EW477M	J	470	25V	EL.	AD
C504	VCKYPA2HB391K	J	390p	500V	Ceramic	AA
C505	VCQYTA1HM473K	J	0.047	50V	Mylar	AB
C507	VCQYTA1HM103K	J	0.01	50V	Mylar	AB
C508	VCEAGA1VW107M	J	100	35V	EL.	AC
C509	VCKYPA2HB102K	J	1000p	500V	Ceramic	AA
C510	VCEAGA1VW477M	J	470	35V	EL.	AD
C511	VCQYTA1HM473K	J	0.047	50V	Mylar	AB
C513	VCEACA1HC225M	J	2.2	50V	EL.	AC
C514	VCEACA1HC225J	J	2.2	50V	EL.	AC

PWB-A: DUNTK9428WEV5 (20V-J100M)
PWB-A: DUNTK9428WEV9 (21V-J100M)
PWB-A: DUNTK9428WEV4 (20V-J200S)
PWB-A: DUNTK9428WEV8 (21V-J200S)

MAIN UNIT (Continued)

Ref. No.	Part No.	★	Description	Code
C517	VCKYPA1HB102K	J	1000p 50V Ceramic	AA
C522	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C551	VCSATA1CE225K	J	2.2 16V Tantalum_(N.P)	AB
C552	VCEA0A1HW225M	J	2.2 50V EL.	AB
C603	VCKYPB2HB562K	J	5600p 500V Ceramic	AB
⚠ C604	VCEAGH2CW227M	J	220 160V EL.	AH
▲ ⚠ C608	VCFPPD3CA922H	J	9200p 1600V M-Poly. (20V-J100M/20V-J200S)	AF
▲ ⚠ C608	VCFPPD3CA912H	J	9100p 1600V M-Poly. (21V-J100M/21V-J200S)	AE
C609	VCKYPA2HB222K	J	2200p 500V Ceramic	AA
C612	VCFPPJ2EB474J	J	0.47 250V M-Poly.	AF
C631	VCEA0A1HW225M	J	2.2 50V EL.	AB
C632	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C633	VCEA0A1HW105M	J	1 50V EL.	AB
C652	VCEA0A1HW475M	J	4.7 50V EL.	AB
C653	VCEA0A1CW106M	J	10 16V EL.	AB
C661	VCKYPA2HB152K	J	1500p 500V Ceramic	AA
C662	VCEA0A1CW477M	J	470 16V EL.	AC
⚠ C701	RC-FZ015SCEZZ	J	0.047 AC250V	AE
C703	RC-KZ0029CEZZ	J	0.01 AC250V	AC
C704	RC-KZ0029CEZZ	J	0.01 AC250V	AC
C705	RC-KZ0029CEZZ	J	0.01 AC250V	AC
⚠ C706	RC-EZ0693CEZZ	J	220 400V EL.	AS
C707	VCKYPA2HB102K	J	1000p 500V Ceramic	AA
C708	RC-KZ0029CEZZ	J	0.01 AC250V	AC
C709	VCKYPA2HB102K	J	1000p 500V Ceramic	AA
C710	VCKYPA2HB472K	J	4700p 500V Ceramic	AB
C711	RC-KZ0341CEZZ	J	0.001 2kV	AD
C712	RC-KZ0029CEZZ	J	0.01 AC250V	AC
C713	RC-KZ0029CEZZ	J	0.01 AC250V	AC
C714	VCEA0A1CW477M	J	470 16V EL.	AC
C715	VCFYHA1HA474J	J	0.47 50V Mylar	AD
C716	VCEA0A1HW106M	J	10 50V EL.	AB
C717	VCFYHA1HA684J	J	0.68 50V Mylar	AD
C718	RC-QZA471TAYJ	J	470p 50V Mylar	AB
C719	VCEA0A1CW107M	J	100 16V EL.	AC
C720	VCEAGA1JW476M	J	47 63V EL.	AB
C721	VCFYHA1HA394J	J	0.39 50V	AC
C722	VCKYPA1HB272K	J	2700p 50V Ceramic	AA
C723	VCKYPA2HB102K	J	1000p 500V Ceramic	AA
C724	VCEA0A1HW105M	J	1 50V EL.	AB
C725	VCQYTA1HM563K	J	0.056 50V Mylar	AB
⚠ C730	RC-KZ0311CEZZ	J	0.0033 AC250V	AD
C751	VCEAGH2CW107M	J	100 160V EL.	AE
C752	RC-KZ0341CEZZ	J	0.001 2kV	AD
C754	VCKYPA2HB102K	J	1000p 500V Ceramic	AA
C755	VCEA0A1CW477M	J	470 16V EL.	AC
C757	RC-KZ0341CEZZ	J	0.001 2kV	AD
⚠ C758	VCEAGA2EW106M	J	10 250V EL.	AC
C759	VCKYPA2HB102K	J	1000p 500V Ceramic	AA
C760	VCEA0A1CW337M	J	330 16V EL.	AC
C761	VCQYTA1HM104K	J	0.1 50V Mylar	AC
C801	RC-QZA223TAYK	J	0.022 50V Mylar	AB
C802	VCEA0A1HW474M	J	0.47 50V EL.	AB
C803	VCCCCY1HH120J	J	12p 50V Ceramic	AA
C804	VCEA0A1HW104M	J	0.1 50V EL.	AB
C805	VCEA0A1HW104M	J	0.1 50V EL.	AB
C806	VCEA0A1HW104M	J	0.1 50V EL.	AB
C807	VCCCCY1HH820J	J	82p 50V Ceramic	AA
C901	VCKYCY1EF104Z	J	0.1 25V Ceramic	AA
C904	VCEA0A1HW335M	J	3.3 50V EL. (20V-J200S/21V-J200S Only)	AB
C905	VCEA0A1HW335M	J	3.3 50V EL.	AB
C951	VCEA0A1HW335M	J	3.3 50V EL. (20V-J200S/21V-J200S Only)	AB
C952	VCEA0A1HW335M	J	3.3 50V EL. (20V-J200S/21V-J200S Only)	AB
C953	VCKYCY1HB681K	J	680p 50V Ceramic (20V-J200S/21V-J200S Only)	AA
C954	VCEA0A1HW335M	J	3.3 50V EL. (20V-J200S/21V-J200S Only)	AB
C955	VCKYCY1HB681K	J	680p 50V Ceramic (20V-J200S/21V-J200S Only)	AA
C956	VCKYCY1HB681K	J	3.3 50V EL. (20V-J200S/21V-J200S Only)	AB
C959	VCEA0A1CW476M	J	47 16V EL. (20V-J200S/21V-J200S Only)	AB
C978	VCKYCY1HB182K	J	1800p 50V Ceramic (20V-J200S/21V-J200S Only)	AA
C979	VCKYCY1HB182K	J	1800p 50V Ceramic (20V-J200S/21V-J200S Only)	AA
C2001	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C2002	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C2003	VCEA0A1CW106M	J	10 16V EL.	AB
C2004	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C2021	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C2022	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C2023	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C2024	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C2040	VCEA0A1AW107M	J	100 10V EL.	AB
C2041	VCEA0A1HW105M	J	1 50V EL.	AB
C2060	VCQYTA1HM104K	J	0.1 50V Mylar	AC
C2061	VCCSPA1HL101J	J	100p 50V Ceramic	AA
C2062	VCEA0A1AW107M	J	100 10V EL.	AB
C2401	VCCCPA1HH560J	J	56p 50V Ceramic	AA
C2402	VCCCPA1HH560J	J	56p 50V Ceramic	AA
C2601	VCEA0A1CW476M	J	47 16V EL.	AB
C2602	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C3001	VCE9GA1HW475M	J	4.7 50V EL._(N.P) (20V-J200S/21V-J200S)	AB
C3002	VCKYCY1HB562K	J	5600p 50V Ceramic (20V-J200S/21V-J200S)	AA
C3003	RC-QZA123TAYK	J	0.012 50V Mylar (20V-J200S/21V-J200S)	AA
C3004	VCEA0A1HW105M	J	1 50V EL. (20V-J200S/21V-J200S)	AB
C3005	VCEA0A1HW475M	J	4.7 50V EL. (20V-J200S/21V-J200S)	AB
C3006	VCEA0A1HW106M	J	10 50V EL. (20V-J200S/21V-J200S)	AB
C3007	VCEA0A1HW475M	J	4.7 50V EL. (20V-J200S/21V-J200S)	AB
C3008	VCKYCY1HF103Z	J	0.01 50V Ceramic (20V-J200S/21V-J200S)	AA
C3009	VCEA0A1CW227M	J	220 16V EL. (20V-J200S/21V-J200S)	AC
C3010	VCE9GA1HW475M	J	4.7 50V EL._(N.P) (20V-J200S/21V-J200S)	AB
C3011	VCEA0A1HW475M	J	4.7 50V EL. (20V-J200S/21V-J200S)	AB
C3012	VCE9GA1HW475M	J	4.7 50V EL._(N.P) (20V-J200S/21V-J200S)	AB
C3013	VCKYCY1HB272K	J	2700p 50V Ceramic (20V-J200S/21V-J200S)	AA
C3014	RC-QZA473TAYK	J	0.047 50V Mylar (20V-J200S/21V-J200S)	AB
C3015	VCSATA1CE335K	J	3.3 16V Tantalum_(N.P) (20V-J200S/21V-J200S)	AC
C3016	VCE9GA1HW475M	J	4.7 50V EL._(N.P) (20V-J200S/21V-J200S)	AB
C3017	VCSATA1CE106K	J	10 16V Tantalum_(N.P) (20V-J200S/21V-J200S)	AD
C3018	VCEA0A1HW105M	J	1 50V EL. (20V-J200S/21V-J200S)	AB
C3019	VCEA0A1HW475M	J	4.7 50V EL. (20V-J200S/21V-J200S)	AB
C3020	VCEA0A1HW475M	J	4.7 50V EL. (20V-J200S/21V-J200S)	AB

RESISTORS

[M-Ox.··· Metal Oxide,M-Film··· Metal Film]

RJ1	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA

PWB-A: DUNTK9428WEV5 (20V-J100M)
PWB-A: DUNTK9428WEV9 (21V-J100M)
PWB-A: DUNTK9428WEV4 (20V-J200S)
PWB-A: DUNTK9428WEV8 (21V-J200S)
MAIN UNIT (Continued)

Ref. No.	Part No.	★				Code
RJ2	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ4	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
			(20V-J200S/21V-J200S)			
RJ5	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ7	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ8	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
			(20V-J100M/21V-J100M)			
RJ11	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
			(20V-J200S/21V-J200S)			
RJ12	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ13	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ16	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ17	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
RJ20	VRS-CY1JF000J	J	0	1/16W	M-Ox.	AA
⚠ R51	VRS-VV3AB331J	J	330	1W	M-Ox.	AA
⚠ R52	VRS-VV3DB470J	J	47	2W	M-Ox.	AA
⚠ R53	VRS-VV3LB223J	J	22k	3.0W	M-Ox.	AB
R54	VRS-CY1JF101J	J	100	1/16W	M-Ox.	AA
R55	VRS-CY1JF101J	J	100	1/16W	M-Ox.	AA
R56	VRS-CY1JF823J	J	82k	1/16W	M-Ox.	AA
R57	VRS-CY1JF392J	J	3.9k	1/16W	M-Ox.	AA
R201	VRS-CY1JF221J	J	220	1/16W	M-Ox.	AA
R202	VRS-CY1JF122J	J	1.2k	1/16W	M-Ox.	AA
R203	VRS-CY1JF682J	J	6.8k	1/16W	M-Ox.	AA
R204	VRS-CY1JF270J	J	27	1/16W	M-Ox.	AA
R205	VRS-CY1JF391J	J	390	1/16W	M-Ox.	AA
R206	VRD-RA2EE151J	J	150	1/4W	Carbon	AA
R208	VRS-CY1JF391J	J	390	1/16W	M-Ox.	AA
R301	VRD-RA2BE222J	J	2.2k	1/8W	Carbon	AA
R302	VRS-CY1JF102J	J	1k	1/16W	M-Ox.	AA
R303	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R304	VRS-CY1JF333J	J	33k	1/16W	M-Ox.	AA
			(20V-J200S/21V-J200S Only)			
R305	VRS-CY1JF102J	J	1k	1/16W	M-Ox.	AA
			(20V-J200S/21V-J200S Only)			
R306	VRS-CY1JF152J	J	1.5k	1/16W	M-Ox.	AA
			(20V-J200S/21V-J200S Only)			
R351	VRD-RA2BE153J	J	15k	1/8W	Carbon	AA
R352	VRD-RA2BE4R7J	J	4.7	1/8W	Carbon	AA
R353	VRD-RA2BE153J	J	15k	1/8W	Carbon	AA
			(20V-J200S/21V-J200S Only)			
R354	VRD-RA2BE4R7J	J	4.7	1/8W	Carbon	AA
			(20V-J200S/21V-J200S Only)			
R355	VRD-RA2BE333J	J	33k	1/8W	Carbon	AA
R401	VRS-CY1JF682J	J	6.8k	1/16W	M-Ox.	AA
R403	VRS-CY1JF331J	J	330	1/16W	M-Ox.	AA
R404	VRS-CY1JF391J	J	390	1/16W	M-Ox.	AA
R405	VRD-RA2BE102J	J	1k	1/8W	Carbon	AA
R406	VRS-CY1JF470J	J	47	1/16W	M-Ox.	AA
R407	VRS-CY1JF680J	J	68	1/16W	M-Ox.	AA
R408	VRS-CY1JF102J	J	1k	1/16W	M-Ox.	AA
R409	VRS-CY1JF471J	J	470	1/16W	M-Ox.	AA
R410	VRD-RA2BE563J	J	56k	1/8W	Carbon	AA
R411	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R412	VRD-RA2EE561J	J	560	1/4W	Carbon	AA
R413	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R414	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R415	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R416	VRS-CY1JF102J	J	1k	1/16W	M-Ox.	AA
R417	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R418	VRS-CY1JF152J	J	1.5k	1/16W	M-Ox.	AA
R419	VRS-CY1JF472J	J	4.7k	1/16W	M-Ox.	AA
R423	VRS-CY1JF222J	J	2.2k	1/16W	M-Ox.	AA
R426	VRS-CY1JF271J	J	270	1/16W	M-Ox.	AA
R440	VRS-CY1JF821J	J	820	1/16W	M-Ox.	AA
⚠ R451	VRS-VV3AB103J	J	10k	1W	M-Ox.	AA
R452	VRD-RA2BE152J	J	1.5k	1/8W	Carbon	AA
R454	VRD-RA2BE334J	J	330k	1/8W	Carbon	AA
R455	VRD-RA2BE392J	J	3.9k	1/8W	Carbon	AA
R456	VRS-CY1JF223J	J	22k	1/16W	M-Ox.	AA
R457	VRD-RA2BE102J	J	1k	1/8W	Carbon	AA
R458	VRD-RA2BE334J	J	330k	1/8W	Carbon	AA
R459	VRD-RA2BE123J	J	12k	1/8W	Carbon	AA
R504	VRD-RA2BE471J	J	470	1/8W	Carbon	AA
R505	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R506	VRD-RA2BE683G	J	68k	1/8W	Carbon	AA
R507	VRD-RA2BE104G	J	100k	1/8W	Carbon	AA
R508	VRD-RA2BE473J	J	47k	1/8W	Carbon	AA
R510	VRD-RM2HD1R2J	J	1.2	1/2W	Carbon	AA
⚠ R511	VRN-SV2HB1R5J	J	1.5	1/2W	M-Film	AB
R512	VRD-RM2HD331J	J	330	1/2W	Carbon	AA
R516	VRD-RA2BE683G	J	68k	1/8W	Carbon	AA
R517	VRD-RA2BE103G	J	10k	1/8W	Carbon	AA
R518	VRD-RA2BE154J	J	150k	1/8W	Carbon	AA
R524	VRS-CY1JF332J	J	3.3k	1/16W	M-Ox.	AA
R525	VRD-RA2BE473J	J	47k	1/8W	Carbon	AA
R552	VRD-RA2BE102J	J	1k	1/8W	Carbon	AA
R553	VRS-CY1JF273J	J	27k	1/16W	M-Ox.	AA
R554	VRS-CY1JF472J	J	4.7k	1/16W	M-Ox.	AA
R602	VRD-RM2HD472J	J	4.7k	1/2W	Carbon	AA
R603	VRS-SV3LB182J	J	1.8k	3.0W	M-Ox.	AB
R608	VRD-RA2BE471J	J	470	1/8W	Carbon	AA
R609	VRD-RA2BE331J	J	330	1/8W	Carbon	AA
⚠ R610	VRS-VV3DB391J	J	390	2W	M-Ox.	AA
R620	VRS-CY1JF103J	J	10k	1/16W	M-Ox.	AA
R621	VRS-CY1JF682J	J	6.8k	1/16W	M-Ox.	AA
R631	VRS-CY1JF391J	J	390	1/16W	M-Ox.	AA
R632	VRD-RA2BE152J	J	1.5k	1/8W	Carbon	AA
R633	VRS-CY1JF472J	J	4.7k	1/16W	M-Ox.	AA
R634	VRD-RM2HD101J	J	100	1/2W	Carbon	AA
⚠ R641	VRS-VV3AB682J	J	6.8k	1W	M-Ox.	AA
R642	VRD-RA2BE821J	J	820	1/8W	Carbon	AA
▲ ⚠ R651	VRD-RM2HD1R0J	J	1	1/2W	Carbon	AA
▲ ⚠ R653	VRD-RA2BE102J	J	1k	1/8W	Carbon	AA
▲ ⚠ R654	VRD-RA2BE473J	J	47k	1/8W	Carbon	AA
▲ ⚠ R655	VRS-CY1JF104J	J	100k	1/16W	M-Ox.	AA
⚠ R659	VRN-VV3ABR33J	J	0.33	1W	M-Film	AA
			(20V-J100M/20V-J100S)			
⚠ R659	VRN-VV3ABR47J	J	0.47	1W	M-Film	AA
			(21V-J100M/21V-J100S)			
⚠ R661	VRN-VV3ABR47J	J	0.47	1W	M-Film	AA
⚠ R701	VRW-KQ4AC2R7K	J	2.7	10W	Cement	AE
⚠ R702	VRW-KQ3HC1R5K	J	1.5	5W	Cement	AE
R703	VRD-RM2HD184J	J	180k	1/2W	Carbon	AA
R704	VRD-RM2HD184J	J	180k	1/2W	Carbon	AA
⚠ R705	VRS-VV3LB272J	J	2.7k	3.0W	M-Ox.	AB
R706	VRN-VV3AB3R3J	J	3.3	1W	M-Film	AA
⚠ R707	VRS-KT3LB562J	J	5.6k	3.0W	M-Ox.	AC
⚠ R708	VRS-KT3LB562J	J	5.6k	3.0W	M-Ox.	AC
⚠ R709	VRN-RV3DB4R7J	J	4.7	2W	M-Film	AB
R710	VRD-RA2BE124J	J	120k	1/8W	Carbon	AA
⚠ R711	VRN-VV3ABR22J	J	0.22	1W	M-Film	AA
⚠ R712	VRD-RM2HD1R0J	J	1	1/2W	Carbon	AA
⚠ R713	VRN-SV2HBR68J	J	0.68	1/2W	M-Film	AB
R714	VRD-RA2BE180J	J	18	1/8W	Carbon	AA
⚠ R715	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R716	VRD-RA2BE102J	J	1k	1/8W	Carbon	AA
R717	VRD-RA2BE270J	J	27	1/8W	Carbon	AA
R718	VRD-RA2BE392J	J	3.9k	1/8W	Carbon	AA
R719	VRD-RA2BE153J	J	15k	1/8W	Carbon	AA
R720	VRD-RA2BE821J	J	820	1/8W	Carbon	AA
⚠ R725	VRC-UA2HG825K	J	8.2M	1/2W	Solid	AA
⚠ R726	VRC-UA2HG825K	J	8.2M	1/2W	Solid	AA
⚠ R730	VRS-SV3LB100J	J	10	3.0W	M-Ox.	AC
			(20V-J200S/21V-J200S Only)			
R731	VRD-RA2EE330J	J	33	1/4W	Carbon	AA
			(20V-J200S/21V-J200S Only)			
⚠ R732	VRS-KA3NG330J	J	33	7.0W	M-Ox.	AE
			(20V-J200S/21V-J200S Only)			
R751	VRN-SV2HBR22J	J	0.22	1/2W	M-Film	AA
R752	VRD-RA2BE561J	J	560	1/8W	Carbon	AA
⚠ R753	VRS-KA3HG3R3K	J	3.3	5W	M-Ox.	AD
⚠ R755	VRS-VV3DB470J	J	47	2W	M-Ox.	AA

Ref. No.	Part No.	★	Description	Code
PWB-A:	**DUNTK9428WEV5**		**(20V-J100M)**	
PWB-A:	**DUNTK9428WEV9**		**(21V-J100M)**	
PWB-A:	**DUNTK9428WEV4**		**(20V-J200S)**	
PWB-A:	**DUNTK9428WEV8**		**(21V-J200S)**	
	MAIN UNIT (Continued)			
R756	VRD-RA2BE562J	J	5.6k 1/8W Carbon	AA
R757	VRN-VV3LBR47J	J	0.47 3.0W M-Film	AC
⚠ R758	VRS-SV2HC180J	J	18 1/2W M-Ox.	AA
R801	VRS-CY1JF332J	J	3.3k 1/16W M-Ox.	AA
R802	VRS-CY1JF332J	J	3.3k 1/16W M-Ox.	AA
R803	VRS-CY1JF222J	J	2.2k 1/16W M-Ox.	AA
R804	VRS-CY1JF222J	J	2.2k 1/16W M-Ox.	AA
R805	VRS-CY1JF222J	J	2.2k 1/16W M-Ox.	AA
R806	VRS-CY1JF333J	J	33k 1/16W M-Ox.	AA
R902	VRS-CY1JF750J	J	75 1/16W M-Ox.	AA
R905	VRS-CY1JF102J	J	1k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R906	VRS-CY1JF102J	J	1k 1/16W M-Ox.	AA
R924	VRS-CY1JF104J	J	100k 1/16 M-Ox. (20V-J200S/21V-J200S Only)	AA
R925	VRS-CY1JF104J	J	100k 1/16W M-Ox.	AA
R951	VRS-CY1JF102J	J	1k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R952	VRS-CY1JF102J	J	1k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R953	VRS-CY1JF102J	J	1k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R954	VRS-CY1JF182J	J	1.8k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R955	VRS-CY1JF223J	J	22k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R956	VRS-CY1JF392J	J	3.9k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R957	VRS-CY1JF683J	J	68k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R958	VRS-CY1JF102J	J	1k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R959	VRS-CY1JF182J	J	1.8k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R960	VRS-CY1JF223J	J	22k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R961	VRD-RA2BE101J	J	100 1/8W Carbon	AB
R962	VRD-RA2BE101J	J	100 1/8W Carbon	AB
R963	VRD-RA2BE102J	J	1k 1/8W Carbon (20V-J200S/21V-J200S Only)	AA
R964	VRD-RA2BE102J	J	1k 1/8W Carbon (20V-J200S/21V-J200S Only)	AA
R965	VRS-CY1JF392J	J	3.9k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R966	VRS-CY1JF683J	J	68k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R967	VRD-RA2BE331J	J	330 1/8W Carbon (20V-J200S/21V-J200S Only)	AA
R2002	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R2006	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R2008	VRD-RA2BE224J	J	220k 1/8W Carbon	AA
R2009	VRS-CY1JF102J	J	1k 1/16W M-Ox.	AA
R2010	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R2011	VRS-CY1JF821J	J	820 1/16W M-Ox.	AA
R2012	VRS-CY1JF471J	J	470 1/16W M-Ox.	AA
R2020	VRD-RM2HD223J	J	22k 1/2W Carbon	AA
R2022	VRD-RA2BE333J	J	33k 1/8W Carbon	AA
R2024	VRS-CY1JF682J	J	6.8k 1/16W M-Ox.	AA
R2025	VRS-CY1JF682J	J	6.8k 1/16W M-Ox.	AA
R2026	VRS-CY1JF682J	J	6.8k 1/16W M-Ox.	AA
R2027	VRS-CY1JF682J	J	6.8k 1/16W M-Ox.	AA
R2028	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
R2029	VRS-CY1JF102J	J	1k 1/16W M-Ox.	AA
R2031	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R2032	VRD-RA2BE471J	J	470 1/8W Carbon	AA
R2040	VRS-CY1JF102J	J	1k 1/16w M-Ox.	AA
R2041	VRD-RA2BE333J	J	33k 1/8W Carbon	AA
R2042	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
R2043	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
R2044	VRS-CY1JF682J	J	6.8k 1/16W M-Ox.	AA
R2045	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
R2047	VRS-CY1JF221J	J	220 1/16W M-Ox.	AA
R2048	VRS-CY1JF562J	J	5.6k 1/16W M-Ox.	AA
R2049	VRS-CY1JF333J	J	33k 1/16W M-Ox.	AA
R2054	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R2055	VRD-RA2BE103J	J	10k 1/8W Carbon	AA
R2060	VRS-CY1JF221J	J	220 1/16W M-Ox.	AA
R2061	VRS-CY1JF562J	J	5.6k 1/16W M-Ox.	AA
R2062	VRS-CY1JF123J	J	12k 1/16W M-Ox.	AA
R2063	VRD-RA2BE222J	J	2.2k 1/8W Carbon	AA
R2064	VRS-CY1JF332J	J	3.3k 1/16W M-Ox.	AA
R2066	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R2067	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R2068	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R2070	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R2101	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
R2102	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
R2201	VRD-RA2EE331J	J	330 1/4W Carbon	AA
R2202	VRD-RM2HD331J	J	330 1/2W Carbon	AA
R2501	VRS-CY1JF123J	J	12k 1/16W M-Ox.	AA
R2503	VRS-CY1JF273J	J	27k 1/16W M-Ox.	AA
R2504	VRS-CY1JF123J	J	12k 1/16W M-Ox.	AA
R2505	VRS-CY1JF563J	J	56k 1/16W M-Ox.	AA
R2506	VRS-CY1JF563J	J	56k 1/16W M-Ox.	AA
R2507	VRS-CY1JF823J	J	82k 1/16W M-Ox.	AA
R2508	VRS-CY1JF153J	J	15k 1/16W M-Ox.	AA
R2509	VRS-CY1JF272J	J	2.7k 1/16W M-Ox.	AA
R2601	VRD-RA2BE470J	J	47 1/8W Carbon	AA
R3001	VRD-RA2BE221J	J	220 1/8W Carbon (20V-J200S/21V-J200S Only)	AA
R3002	VRD-RA2BE221J	J	220 1/8W Carbon (20V-J200S/21V-J200S Only)	AA
R3003	VRS-CY1JF105J	J	1M 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R3004	VRS-CY1JF104J	J	100k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R3005	VRS-CY1JF623J	J	62k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R3007	VRS-CY1JF332J	J	3.3k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R3008	VRS-CY1JF302J	J	3.0k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R3010	VRS-CY1JF392J	J	3.9k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R3011	VRS-CY1JF102J	J	1k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R3012	VRS-CY1JF102J	J	1k 1/16W M-Ox. (20V-J200S/21V-J200S Only)	AA
R3013	VRS-RA2BE2R2J	J	2.2 1/8W Carbon (20V-J200S/21V-J200S Only)	AA
	SWITCHES			
⚠ S701	QSW-P0588CEZZ	J	Switch, MAIN	AP
S2501	QSW-K0079GEZZ	J	Switch, POWER	AB
S2502	QSW-K0079GEZZ	J	Switch, VOL-DOWN	AB
S2503	QSW-K0079GEZZ	J	Switch, VOL-UP	AB
S2504	QSW-K0079GEZZ	J	Switch, CH-DOWN	AB
S2505	QSW-K0079GEZZ	J	Switch, CH-UP	AB
	MISCELLANEOUS PARTS			
⚠ F701	QFS-C3229CEZZ	J	Fuse, T3.15A	AD
FB602	RBLN-0037CEZZ	J	Balun, BLN-0037CE	AB
FB603	RBLN-0037CEZZ	J	Balun, BLN-0037CE	AB
FB701	RBLN-0037CEZZ	J	Balun, BLN-0037CE	AB
FB702	RBLN-0037CEZZ	J	Balun, BLN-0037CE	AB
FB751	RBLN-0080CEZZ	J	Balun, BLN-0080CE	AD
FB752	RBLN-0037CEZZ	J	Balun, BLN-0037CE	AB
⚠ FH701	QFSHD1013CEZZ	J	Fuse Holder	AC
⚠ FH702	QFSHD1014CEZZ	J	Fuse Holder	AC
J901	QTANJ0247CEZZ	J	Terminal, Audio/Video IN (20V-J100M/21V-J100M)	—
J901	QTANJ0526CEZZ	J	Terminal, Audio/Rear IN (20V-J200S/21V-J200S)	—

PWB-A: DUNTK9428WEV5 (20V-J100M)
PWB-A: DUNTK9428WEV9 (21V-J100M)
PWB-A: DUNTK9428WEV4 (20V-J200S)
PWB-A: DUNTK9428WEV8 (21V-J200S)
MAIN UNIT (Continued)

Ref. No.	Part No.	★	Description	Code
J902	QJAKE0108CEZZ	J	Jack, Video IN	AC
J903	QJAKE0183CEZZ	–	Jack, Audio	—
J904	QJAKE0184CEZZ	J	Jack, Audio R (20V-J200S/21V-J200S Only)	AE
P302	QPLGN0461CEZZ	J	Plug, 4 Pin	AB
P401	QPLGN0561CEZZ	J	Plug, 5 Pin	AB
⚠ P601	QPLGN0603CEZZ	J	Plug, 6 Pin	AB
P651	QPLGN0361CEZZ	J	Plug, 3 Pin	AB
P701	QPLGN0304CEZZ	J	Plug, 3 Pin	AB
P702	QPLGN0207CEZZ	J	Plug, 2 Pin	AA
P751	QPLGN0461CEZZ	J	Plug, 4 Pin	AB
P901	QPLGN0461CEZZ	J	Plug, 4 Pin (20V-J100M/21V-J100M)	AB
P901	QPLGN0661CEZZ	J	Plug, 6 Pin (20V-J200S/21V-J200S)	AD
P902	QPLGN0461CEZZ	J	Plug, 4 Pin (20V-J100M/21V-J100M)	AB
P902	QPLGN0661CEZZ	J	Plug, 6 Pin (20V-J200S/21V-J200S)	AD
P903	QPLGN0261CEZZ	J	Plug, 2 Pin (20V-J100M/21V-J100M)	AB
P903	QPLGN0461CEZZ	J	Plug, 4 Pin (20V-J200S/21V-J200S)	AB
P904	QPLGN0261CEZZ	J	Plug, 2 Pin (20V-J100M/21V-J100M)	AB
P904	QPLGN0461CEZZ	J	Plug, 4 Pin (20V-J200S/21V-J200S)	AB
P2001	QPLGN0561CEZZ	J	Plug, 5 Pin	AB
RMC2601	RRMCU0222CEZZ	J	Remote Receiver	AL
⚠ HM711	LX-GZ3001PEZZ	R	Screw	AB
⚠ HM712	LX-GZ3001PEZZ	R	Screw	AB
HM713	LX-GZ3001PEZZ	R	Screw	AB
HM714	LX-GZ3001PEZZ	R	Screw	AB
HM715	LX-GZ3001PEZZ	R	Screw	AB
HM716	LX-GZ3001PEZZ	R	Screw (20V-J200S/21V-J200S Only)	AB
HM717	LX-GZ3001PEZZ	R	Screw (20V-J200S/21V-J200S Only)	AB
HM718	LX-GZ3002PEZZ	R	Screw (20V-J200S/21V-J200S Only)	AB
HM719	LX-GZ3002PEZZ	R	Screw (20V-J200S/21V-J200S Only)	AB
HM721	LX-GZ3002PEZZ	R	Screw	AB
⚠ HM722	LX-GZ3002PEZZ	R	Screw	AB
HM723	LX-GZ3002PEZZ	R	Screw	AB
⚠ HM724	LX-GZ3002PEZZ	R	Screw	AB
HM729	LX-GZ3001PEZZ	R	Screw	AB
HM730	LX-GZ3001PEZZ	R	Screw	AB
HM731	LX-GZ3001PEZZ	R	Screw	AB
HM732	LX-GZ3001PEZZ	R	Screw	AB
HM733	LX-GZ3001PEZZ	R	Screw	AB
⚠ HM734	LX-GZ3001PEZZ	R	Screw	AB
⚠ HM735	LX-GZ3001PEZZ	R	Screw	AB
⚠ HM736	LX-GZ3001PEZZ	R	Screw	AB
⚠ HM737	LX-GZ3001PEZZ	R	Screw	AB
HM738	LX-GZ3001PEZZ	R	Screw (20V-J200S/21V-J200S Only)	AB
HM739	LX-GZ3001PEZZ	R	Screw (20V-J200S/21V-J200S Only)	AB
HM740	LX-GZ3001PEZZ	R	Screw	AB
RDA351	PRDAR0142PEFW	R	Heat Sink	AD
RDA352	PRDAR0142PFEW	R	Heat Sink (20V-J200S/21V-J200S Only)	AD
RDA501	PRDAR0218PEFW	R	Heat Sink	AD
⚠ RDA601	PRDAR0216PEFW	R	Heat Sink	AE
RDA701	PRDAR0222PEFW	R	Heat Sink	AH
⚠ RY701	RRLYU0036CEZZ	J	Relay	AM
⚠ RY751	RRLYU0036CEZZ	J	Relay	AM
	LHLDP1042PE00	R	LED Holder	AG
	LHLDW1002PEZZ	R	Wire Holder	AB
	LX-BZ3100CEFD	J	Screw, Heat Sink	AA

PWB-B: DUNTK9431WEV1 (20V-J100M/J200S)
PWB-B: DUNTK9431WEV2 (21V-J100M/J200S)
CRT UNIT

TRANSISTORS

Q852	VS2SC2229O/1E	J	2SC2229(O)			AD
Q854	VS2SC2229O/1E	J	2SC2229(O)			AD
Q856	VS2SC2229O/1E	J	2SC2229(O)			AD
Q881	VS2SA1266-Y-1	J	2SA1266(Y)			AA

DIODES

★ You can substitute "RH-DX0045GEZZ" and "RH-DX0446CEZZ" for "VHD1SS119//-1".

D881	VHD1SS119//-1	J	1SS119			AB
D882	VHD1SS119//-1	J	1SS119			AB
D885	VHD1SS119//-1	J	1SS119			AB

COIL

L851	VP-DF151K0000	J	Peaking 150µH			AB

CAPACITORS

[EL.··· Electrolytic]

C851	VCKYPA1HB271K	J	270p	50V	Ceramic	AA
C852	VCKYPA1HB271K	J	270p	50V	Ceramic	AA
C853	VCKYPA1HB271K	J	270p	50V	Ceramic	AA
C854	RC-KZ0016CEZZ	J	0.01	1.4kV		AC
C881	VCEA0A1CW106M	J	10	16V	EL.	AB
C883	VCEA0A1CW336M	J	33	16V	EL.	AB

RESISTORS

[M-Ox.··· Metal Oxide]

R851	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R852	VRD-RA2BE221J	J	220	1/8W	Carbon	AA
R853	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
⚠ R857	VRS-VV3AB123J	J	12k	1W	M-Ox.	AA
R858	VRD-RM2HD332J	J	3.3k	1/2W	Carbon	AA
R859	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R860	VRD-RA2BE221J	J	220	1/8W	Carbon	AA
R861	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
⚠ R865	VRS-VV3AB123J	J	12k	1W	M-Ox.	AA
R866	VRD-RM2HD332J	J	3.3k	1/2W	Carbon	AA
R867	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R868	VRD-RA2BE221J	J	220	1/8W	Carbon	AA
R869	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
⚠ R873	VRS-VV3AB123J	J	12k	1W	M-Ox.	AA
R874	VRD-RM2HD332J	J	3.3k	1/2W	Carbon	AA
R881	VRD-RA2BE102J	J	1k	1/8W	Carbon	AA
R882	VRD-RA2BE391J	J	390	1/8W	Carbon	AA
R883	VRD-RA2BE561J	J	560	1/8W	Carbon	AA
R884	VRD-RA2BE152J	J	1.5k	1/8W	Carbon	AA
R885	VRD-RA2BE470J	J	47	1/8W	Carbon	AA

MISCELLANEOUS PARTS

P851	QPLGN0561CEZZ	J	Plug, 5 Pin	AB
P852	QPLGN0461CEZZ	J	Plug, 4 Pin	AB
SC851	QSOCV0933CEZZ	J	Socket, 8 Pin	AH

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
⚠	QACCU0019PJZZ	–	AC Cord	—
SP1	RSPF-0022PJZZ	–	Speaker (L)	—
SP2	RSPF-0022PJZZ	–	Speaker (R) (20V-J100M/21V-J100M)	—
SP1	RSPF-0100PJZZ	–	Speaker (L)	—
SP2	RSPF-0100PJZZ	–	Speaker (R) (20V-J200S/21V-J200S)	—

SUPPLIED ACCESSORIES

	TiNSE0401PJZZ	–	Operation Manual (20V-J100M/21V-J100M)	—
	TiNSE0402PJZZ	–	Operation Manual (20V-J200S/21V-J200S)	—
	RRMCG1324CESA	J	Infrared R/C Unit	AT
	QANTD0102PJZZ	–	Rod Antenna (20V-J100M/20V-J200S)	—
	QANTD0106PJZZ	–	Rod Antenna (21V-J100M/21V-J200S)	—
	TGAN-0129PFZZ	–	Guarantee Card	—
	TLSTS0105PFZZ	–	Service List	—

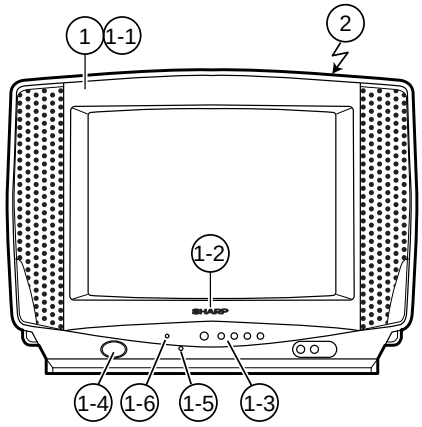
PACKING PARTS
(NOT REPLECEMENT ITEM)

SPAKC0561PJZZ	–	Packing Case (20V-J100M)	—
SPAKC0563PJZZ	–	Packing Case (21V-J100M)	—
SPAKC0562PJZZ	–	Packing Case (20V-J200S)	—
SPAKC0564PJZZ	–	Packing Case (21V-J200S)	—
SPAKA0411PJZZ	–	Buffer Material	—
SSAKH0135PFZZ	–	Polyethylene Bag	—
SSAKH0172PFZZ	–	Polyethylene Bag	—

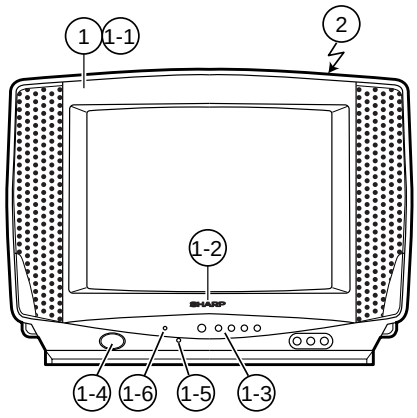
CABINET PARTS

Ref. No.	Part No.	★	Description	Code
1	CCABA0217WEA0	–	Front Cabinet Ass'y (20V-J100M)	—
1	CCABA0219WEA0	–	Front Cabinet Ass'y (21V-J100M)	—
1	CCABA0218WEA0	–	Front Cabinet Ass'y (20V-J200S)	—
1	CCABA0220WEA0	–	Front Cabinet Ass'y (21V-J200S)	—
1-1	*Not Available*	–	Front Cabinet	—
1-2	HBDGB0102PFZZ	–	Badge, "SHARP"	—
1-3	JBTNC0004PJSA	–	Button, Power, Vol-up/down, CH-up/down	—
1-4	JBTNP0010PJSA	–	Button, Main Power	—
1-5	HDECQ0181PJSA	–	Cover, R/C Receover	—
1-6	HDECQ0182PJSA	–	Cover, LED	—
2	GCABB0210PJSA	–	Rear Cabinet (20V-J100M/21V-J100M)	—
2	GCABB0211PJSA	–	Rear Cabinet (20V-J200S/21V-J200S)	—

CABINET PARTS LOCATION

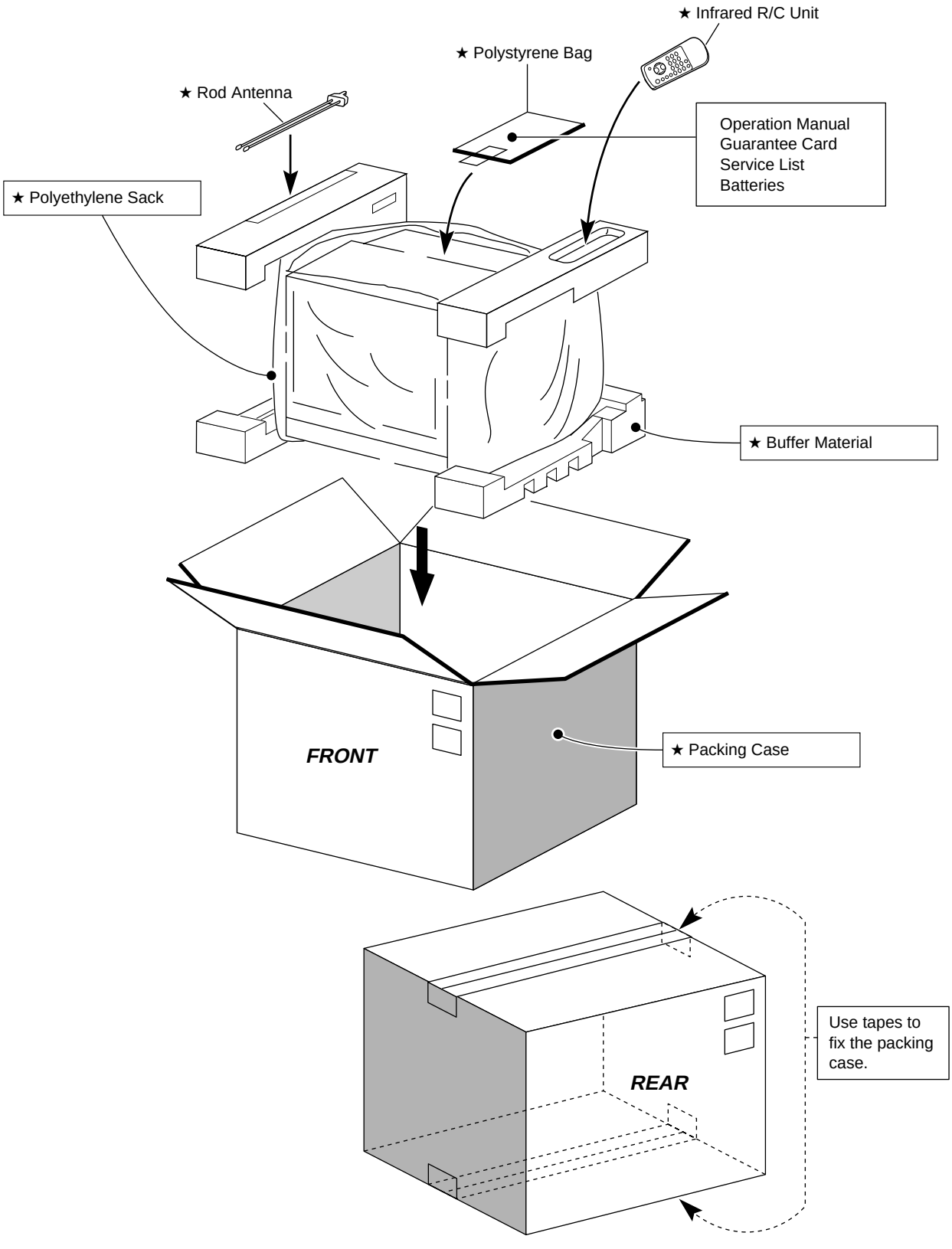


20/21V-J100M



20/21V-J200S

PACKING OF THE SET



MARK ★ : Not replacement items.

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